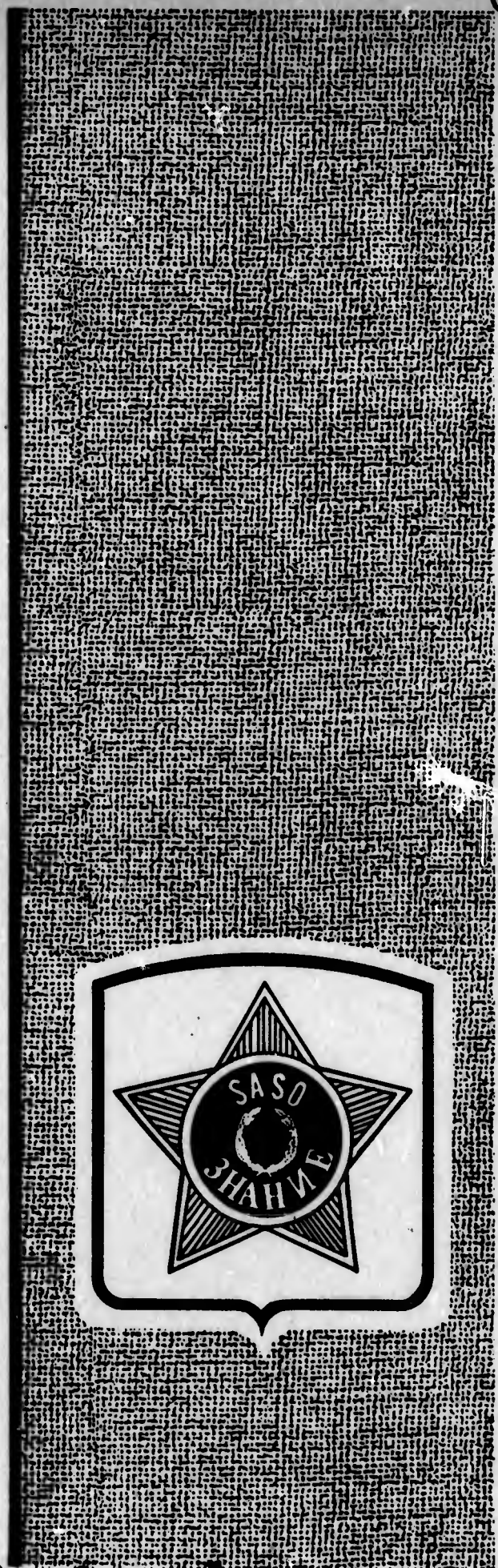
NIGHT ATTACK

BY

A SOVIET BATTALION



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Soviet ground force tactical units conduct night attacks in accordance with a theoretical model which has changed little over the past decade. Its salient characteristics are pre-battle reconnaissance, attack from the march, dismounted assault, illumination, patrolling, commitment of a second echelon, and penetration of the defending brigade reserve positions by dawn. Demonstrated Soviet tactical unit deficiencies in executing the night attack include land navigation and terrain orientation, driving, and use of night vision devices. Theoretical vulnerabilities which may be exploited include over reliance on illumination, predictibility of employment of combat reconnaissance patrols, and physical exhaustion of Soviet troops. Keywords.

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INTRODUCTION

Night combat [nochnoy boy] remains an important element of Soviet tactics. Soviet experience in night offensive combat dates to the Russian Civil War period. In November 1920, Red divisions began a major offensive with a night attack to force a broad water obstacle and seize a beachhead on the northern approach to the Crimean peninsula.[1] This success led to the defeat of Baron Wrangel's White forces and the eventual fall of the entire peninsula. Examples of Soviet night offensive combat in World War II abound, both in the European and Far Eastern TVDs (theaters of military action).[2] In the postwar years, based on their own wartime experiences, and on the study of local wars and conflicts around the world, the Soviets have continued to develop effective techniques for combat under conditions of reduced visibility.[3] As a result, the Soviets have a clearly-articulated theory for night offensive combat at the subunit level (podrazdeleniye - battalion and lower).

This paper examines this theory, both as portrayed in Soviet tactical studies, and through analysis of several night attack exercises. It describes recognized Soviet training weaknesses, and concludes with a description of potential vulnerabilities, which might be exploited to defeat a Soviet night attack.

SOVIET NIGHT ATTACK THEORY

Influence on combat actions

When analyzing Soviet night attack theory, one must first recognize Soviet military theorists' perceptions concerning factors inherent in offensive and defensive night combat.[4] There are numerous variables in the equation: the degree of darkness of the night; the amount of special equipment a unit has for night actions; the effectiveness of various types of equipment and weapons; and the level of training of units for night actions.

The Soviets acknowledge a wide range of technical equipment which can support the conduct of night actions, including electrical, pyrotechnic, night vision, radar, thermal, remote sensing, and signalling devices.[5] Electrical devices include searchlights, vehicle lights, flashlights, and so on. Pyrotechnic devices include all types of illumination ordnance, from ground trip flares to parachute flares launched from mortars, artillery, or aircraft. The Soviets describe night vision devices as both active and passive, and show a clear understanding of the advantages and limitations of each.[6] Radars include ground surveillance, artillery and mortar counterfire, and counter-radar equipment. Remote sensing devices include seismic intrusion detectors, remote sound sensors, infrared detection devices, and remote camera devices. Thermal sights and low-level-light television are described in terms of their use by

NATO in both ground and air systems.[7] Finally, the category which the Soviets call "light signal devices" includes tracer bullets, star clusters, ground flares, route and lane-marking battery-powered lights, and lanterns.

The effect of these means are varied. Soviet theory posits that soldiers not equipped with night vision sights require 1.3 to 1.5 times more ammunition for small arms engagements at night than in daytime. The time required for motorized rifle units to conduct a specific mounted maneuver is 30 per cent greater in darkness. As Soviet sources emphasize, tank units can have great shock effect on the enemy in night combat. Antitank and artillery fires are less effective, due to problems of target acquisition and fire adjustment. Ammunition and time expended in night actions increase, and maneuverability of tank units decreases. Artillery units need more time to occupy firing positions, and expend more ammunition in fire missions.[8]

Air defense weapons which require visual target acquisition and identification have greatly diminished effectiveness at night, while those systems with electronic targeting capability are not adversely affected. Aviation assets possess effectiveness commensurate with the technological level of their target acquisition/identification equipment. Engineer work using night vision devices requires 25--30 per cent more time at night, particularly since many engineer tasks must be accomplished with heavy equipment, and under enemy observation. All support

activities, such as vehicle repair, medical evacuation, and resupply are also more difficult at night.

Soviet theorists recognize that conducting an attack at night accords several advantages. Units can engage the enemy with a less-pronounced superiority in forces than required for a daylight attack.[9] They can more readily achieve surprise, and accomplish their missions with fewer losses than during the day. Attacking forces can reorganize and relocate under cover of darkness, thus retaining the initiative, and denying the enemy time to regroup or reinforce. Conversely, the Soviets identify a number of disadvantages. Even with technological advances in the development of observation and detection devices, it remains more difficult to maintain contact with the enemy at night. Darkness complicates terrain orientation and land navigation, and compounds routine and normal command and control problems. Mutual coordination [vzaimodeystviye] becomes more difficult to effect. The degraded performance of men and equipment, as previously noted, further complicates the attack. Finally, the Soviets acknowledge that night combat operations place greater physical and psychological stress on soldiers. They understand the importance of the physical and mental preparation of soldiers and units before they are committed to night combat.

General Principles

A night attack commences either from the march or from a position in contact with the enemy.[10] These two forms differ

regarding the location of assembly areas and types of control measures employed. A unit attacking from the march usually passes through another unit in contact with the enemy, and thus gains the advantages of surprise and reduced vulnerability. A unit attacking from positions in contact generally is able to acquire more precise information on enemy disposition and strength, but is less likely to gain the element of surprise. Once the attacking unit has deployed and crossed the line of attack, the two forms are identical.

An attacking motorized rifle or tank battalion can perform a variety of roles at night, on either the main axis or in a supporting attack, in the first or second echelon, as a forward detachment, advance guard, or enveloping detachment. Its basic goal, according to the Soviet night combat specialist A. A. Rybian, is "the defeat of the opposing enemy and seizure of important positions or areas of terrain."[11] A Soviet reinforced tank or motorized rifle battalion attacking on the main axis at night normally operates on a narrower frontage than a similar-sized force not on the main axis.[12] While this force is expected to penetrate to the same depth as in the day, the mission is stated in a slightly different form. The immediate daytime mission of a reinforced battalion is normally to penetrate the defensive positions of the defending battalion and seize them.[13] The subsequent mission is to attack in concert with neighboring units and defeat the enemy brigade reserve. The last element of the mission is the direction of further advance.

If the defender has had time to develop fully his defensive fortifications, or is defending behind a river line, the immediate daytime mission of the Soviet reinforced battalion is to penetrate the defending company strongpoint and seize it. The subsequent mission is to penetrate and seize the defending battalion position with the aid of neighboring attacking units. At night, however, the battalion's immediate or subsequent mission is designated as the position to be reached by dawn. If because of the nature of the terrain, the strength of the defender, or the shortness of the night the battalion cannot achieve this depth, it must reach a specified line by dawn, and then continue the attack without pause in daylight.[14]

The Soviets consider many factors in establishing the combat formation [boyevoy poriadok] of a reinforced battalion for a night attack. Above all, it must have sufficient combat power in its first echelon to enable it to accomplish the immediate mission without reinforcement before dawn. To insure the greatest degree of tactical independence, tank/motorized rifle, artillery, and engineer reinforcements are attached to companies. During a breakthrough of prepared defenses, a battalion normally organizes with a first echelon of two companies, and a second echelon or reserve of one company. If the enemy position appears to be weak, or the attacking battalion is understrength, the second echelon or reserve can be as small as a platoon.

Batteries from the attached artillery battalion provide support to companies, with one platoon of artillery or mortars

set aside to fire illumination. At night more artillery, especially self-propelled, is used in the direct fire mode. Antitank guns and guided missiles deploy in sectors between first echelon companies and on flanks, as well as close behind the combat formations of the company on the main axis. Organic battalion air defense units disperse behind the first echelon companies, with attached air defense weapons farther to the rear, where they can protect the combat formation from enemy air attack, and also destroy enemy illumination support by shooting down parachute flares.[15]

The battalion second echelon, or reserve, moves closer to the first echelon at night, utilizing terrain for cover. This permits its rapid introduction into the battle. To avoid the problems associated with resubordination and reorganization at night, the second echelon normally receives its combat support attachments before dark.

Illumination in the Attack

Illumination in a night attack enhances the attacking force's activities, and at the same time complicates those of the defending enemy.[16] Illumination accomplishes several specific missions: exposing targets and objectives in the enemy's defenses, to include his reserve or counterattacking force; designating or marking routes of march or maneuver; marking the direction of the attack, and maintaining orientation; and marking zones of contamination, obstacles, bypasses, passage

lanes, and frontline traces. Illumination is also used to assist in mutual recognition, designate targets, facilitate control, and effect coordination with neighboring units. Illumination can also blind enemy observation points, command and control positions, and night vision devices used for observation or weapons firing.

Soviet illumination support is always tightly organized and controlled. Battalion commanders are encouraged to conserve pyrotechnic illumination resources by judicious use of night vision devices, so that they will have 15-20 per cent of their illumination support in reserve for unexpected missions.[17] Periodic illumination assists in terrain orientation, observation, and the use of both direct and indirect fire weapons. Continuous illumination, which requires significant expenditures of resources, is applicable only to special occasions, such as during the initial assault, while defeating a counterattack, or during the introduction the second echelon. the Soviets designate targets by direct illumination, by illumination of a reference point with subsequent adjustment to the target, or by signal rocket or tracer rounds.

Associated with illumination, the Soviets possess a wide variety of nonluminous, luminous, and illuminated marking devices, which they use for marking release points, routes, lines of deployment, passage lanes, critical traffic points, and so on. Combinations of colored lights differentiate between units. Battalions employ prearranged infrared or visible light

signals to mark their positions for friendly aviation support. Ordinarily, companies establish light posts [osvetitel'nyy post rotoy][18] to designate troop positions every 500 meters along a battalion frontline trace. These markers are activated only on order, and are extinguished as soon as the supporting flight mission is completed. Several different methods assist in mutual recognition of troops and equipment at night. Tank turrets and BMP/BTR side panels carry white recognition markings, and dismounted troops wear some type of color marking on their sleeves or backs. Signal rockets, flashlights, infrared emitters, and other devices provide challenge-response signals.

One of the most important Soviet uses of illumination is to blind enemy troops or their night vision devices. They attempt to do this with flares, searchlights, and incendiary-caused fires.[19] Employment of blinding illumination is most critical during movement, deployment, and assault on the initial defensive positions. During their pre-battle reconnaissance, the Soviets make every effort to locate the defender's command observation posts and night vision devices. Conversely, enemy use of night observation devices is a constant concern for the Soviet commander, especially since newer-generation devices are mostly passive, and thus are extremely hard to detect. Soviet commanders and troops are taught the enemy organization and equipment, enemy employment of night observation devices, and recognition signs of their use.

Action against the enemy's illumination support is conducted in a detection phase and a destruction phase. Pre-battle reconnaissance seeks out enemy mortar and artillery firing positions for destruction during the Soviet artillery preparation. During the course of the battle, first priority is given to the destruction of any newly-discovered positions from which illumination is being fired against Soviet forces.

Preparation of the Night Attack

Soviet troop-leading procedures for the preparation of the night attack are essentially the same as for a daytime attack.[20] In fact, Soviet battalion commanders are trained to plan for the possibility that their daylight attacks may extend into the hours of darkness. Combat taking place at night, however, requires some additional planning elements. If the attack begins from a position in contact, the Soviet commander conducts his pre-battle planning and reconnaissance on the ground. If the attack is from the march, the commander normally makes a decision based upon a map study and, if possible, goes forward to look at the terrain, a process called rekognostsirovka, or commander's reconnaissance.

Commanders give special consideration to such things as time of year and day, which determines the duration of darkness and intensity of moonlight; the enemy's capability in the areas of illumination support and use of night vision devices; the illumination plans of adjacent Soviet units and how they will affect the attack; and the ability of the unit through which the

attacking unit will pass to support the attack with illumination. The Soviet commander pays particular attention to weather, because wind, precipitation, and humidity all affect his illumination plan.

Organizing coordination for a night attack is both more difficult and more important than for a daylight attack.[21] Night attacks require additional control measures and recognition signals, an illumination plan, a plan for the use of night vision devices, a plan for the designation and use of illumination reference points, measures to take in dealing with enemy illumination and night vision devices, and a plan for transition from night actions to day actions. The plans for the dispatch of a post-breakthrough combat reconnaissance patrol [boyevoy razvedyvatel'nyy dozor/BRD], the handling of the enemy's counterattack force, and the employment of the second echelon or reserve are not unique to night actions, but require careful preparation as well.

CONDUCT OF THE NIGHT ATTACK (THEORY)

Soviet units conduct night attacks either from the march or from positions in close contact with the enemy. These two modes differ only in the initial stages. The attack from the march normally begins with the movement of artillery units, designated tanks, and other direct fire systems from the assembly area into firing positions.[22] The artillery preparation, if used, will often be shorter than during the day.[23] At the

appointed time, the battalion lead element crosses the start point and moves at predetermined speed to the lines of deployment into company and then platoon columns. Just before reaching the line of attack, platoons deploy on line into their combat assault formation. The degree of use of night vision devices depends on a number of variables, including level of ambient light, difficulty of terrain, and probability of enemy detection.

While the artillery fires the preparation, and the battalion deploys into company and then platoon columns, designated tanks, artillery, and other direct fire weapons conduct aimed fires on preselected targets, and the engineers clear lanes in enemy barrier systems. The Soviet battalion commander moves from his place behind the lead unit and occupies his command observation post, where he is joined by the supporting artillery battalion commander.

If the attack is executed from a position of close contact with the enemy, motorized rifle troops, with the exception of selected gun crews, snipers, and observers, remain under cover until the attack begins. Commanders man their posts, monitor the results of the artillery preparation and control their own direct fires. When the tanks approach the line of attack, motorized rifle forces in contact with the enemy occupy their forward trench positions and open fire on enemy antitank guided missile crews. With the aid of signal devices or markers, they show the tanks where to cross the trenches. As the tanks cross over the

trenchlines, motorized rifle troops emerge from their positions and attack.

Whether attacking from the march or from a position in contact, if the enemy's initial positions are significantly distant, under normal terrain conditions motorized rifle troops attack mounted until they are 300-400 meters from the enemy. If enemy fire is weak, BTRs and BMPs move close behind the tanks, for protection from enemy tank and antitank fires. This lessens losses, saves the strength of the troops for the dismounted assault, significantly increases the speed of the attack, and facilitates closer interaction of motorized rifle units with tanks.[24] In terrain which is difficult for wheeled BTRs, infantry troops initially ride on tanks. Thus, tank commanders are informed immediately of enemy antitank fires.

As the initial assault begins, Soviet artillery continues to fire on known and suspected enemy positions, including the enemy's artillery and mortar firing positions and command posts. If illumination is being used at this stage in the battle, it will be continuous, ammunition stocks permitting. As the attacking force moves into the enemy's zone, artillery begins to fire marking rounds to establish and maintain the direction of the attack. All direct fire weapons engage targets exposed either by illumination or by their own fires. Enemy fixed or mobile searchlights are priority targets. If they cannot be destroyed, the Soviet commander uses smoke to blind them. As noted earlier, specially designated gun crews attempt to shoot

down enemy parachute flares, and antiaircraft gun crews engage air-delivered parachute flares (utilizing short range missiles in exceptional cases).

If the attack occurs without illumination, battlefield fires provide additional ambient light for night sights and observation devices. Quite often incendiary rounds are used to start grass or brush fires. If the enemy illuminates the battlefield, the Soviet commander will also illuminate, and continue the attack under illumination.

Tanks and BMPs cross minefields in their attack formation by using mine rollers and plows, while BTRs and other equipment use passage lanes.[15] Dismounted infantry follow in the tracks of the vehicles. If they cannot find or see the tracks, they cross in lanes marked by the combat engineers. If there are insufficient mine rollers, passage lanes are negotiated first by tanks, then by BMPs, and finally by other combat vehicles. The period of the negotiation of the enemy's barrier system is the most critical moment in the attack. During this phase the Soviet commander does his utmost to destroy or suppress enemy direct fire and observation positions. His antitank resources are especially important in this task, and are placed in overwatch positions.

Tank survivability is enhanced at night by their maneuverability, as well as by the difficulty of enemy gunners in maintaining a good sight picture in poor light conditions. Stabilization systems significantly aid tank crews in maintaining gun tube orientation, while still allowing tanks to maneuver.[16]

As tank and motorized rifle units advance into a well-illuminated zone, company and battalion commanders shift illumination fires forward to the next phase line.

Close coordination between motorized rifle and tank units is vital. Motorized rifle commanders, if they detect or are engaged by weapons systems which they are unable to destroy with their own means, designate targets for the tanks with signal flares or tracer shells. The motorized rifle units also use the smoke-generating capability of tanks to cover their movement.[17] Conversely, the motorized rifle units seek to destroy ATGM crews and positions as well as enemy illumination posts.

When his forces have penetrated the enemy position to the depth where his own artillery may endanger them, the Soviet battalion commander orders the shifting of fires and, if necessary, illumination. At this point, illumination is no longer continuous, but remains available. Soviet units take care not to bypass pockets of enemy resistance, since these groups pose a danger to the second echelon. Small forces from the first echelon neutralize these pockets. This is a departure from day-fighting techniques, when the second echelon forces frequently receive the specific mission to neutralize bypassed pockets of resistance.

At this stage of the battle, when the enemy's forward platoon and company positions have been defeated, the Soviet commander dispatches one or more combat reconnaissance patrols [BRD]. A battalion normally deploys a platoon, and a motorized

rifle company a squad. The primary task of these patrols is to establish the location, size, and axis of the enemy reserve or counterattack force.[28] Companies of the first echelon which have accomplished their immediate mission attack on to the battalion immediate mission or, based on the information garnered by the reconnaissance patrol, are given new missions.

With the immediate mission fulfilled, the Soviet battalion commander introduces his second echelon company to increase his combat power and develop the offensive into the depths. Soviet tactical doctrine posits that only 13-18 minutes will be required for this action (7-10 minutes for alert, designation of mission, and resubordination of support, and 6-8 minutes for movement and deployment).[29] The battalion commander personally directs the commitment of the second echelon company, and gives the mission to its commander orally at his command post or by radio. The second echelon company's attack is often supported by the fires of first echelon companies, which also continue to attack within the enemy positions. Whenever the second echelon is committed, a reserve is created by pulling back a company or platoon from the first echelon.

Having penetrated the enemy's forward battalion defensive positions, the Soviet battalion swiftly deploys on the specified axis in pre-battle formation [predboyevoy poryadok][30] to catch and destroy the retreating enemy before he can set up a cohesive defense at a subsequent position. If the enemy does succeed in reestablishing a position, the Soviet commander tries to fix it

with artillery fire, then attacks it from the flanks or rear. The combat reconnaissance patrol (BRD) receives the mission to find exploitable gaps between defensive positions or on the enemy's flanks.

If the BRD has detected an enemy counterattack force, the Soviet battalion commander considers whether to attack it in a meeting engagement, or defeat it by some combination of direct and indirect fires from a position on favorable terrain. It is vital to prevent any coordinated action between the fixed enemy force and his counterattacking force. If necessary, the Soviet battalion commander moves a unit, perhaps his antitank reserve, across the enemy route of advance, and orders his combat engineers to lay a hasty minefield in conjunction with an ambush.

Just as in the day, if the enemy counterattack force is superior to the attacking Soviet battalion, the main body quickly establishes defenses on a favorable line in single echelon, with a small reserve.[31] An obstacle plan is implemented, artillery fire plans are coordinated, motorized rifle troops occupy dismounted positions, and vehicles are emplaced in mutually supporting firing positions. Antitank weapons deploy on the main armor avenue of approach, and the automatic grenade launcher platoon is sited on the avenue of greatest dismounted threat.

Concentrated indirect and direct fires under illumination strike the counterattacking enemy first. Should any enemy tanks penetrate the defense, they are destroyed by antitank fires, the reserve, or artillery direct fire. The Soviet commander may send

out small teams of tanks and infantry to hit the counterattack force in the flanks or rear. When the counterattack is finally defeated, the Soviet battalion continues its attack, alone or in concert with adjacent units, and defeats the enemy. When the Soviet battalion attains its subsequent mission, it occupies positions and resupplies in preparation for its next mission. This mission (usually at dawn) may be to defeat another counterattack, or to continue the attack. In either case, the battalion is to be prepared to act without pause between night and day combat actions."[32]

CONDUCT OF THE NIGHT ATTACK (PRACTICE)

Having examined in some detail the Soviet theory for night offensive operations, it is now appropriate to look at how they implement that theory. Several exercises involving motorized rifle or tank battalions, which occurred over the fifteen-year period from 1974 to 1988, have been described in the open press. Specific characteristics or features were common tc them all (See Table 1 and Figure 1).[33]

Six of the nine exercises involved a motorized rifle battalion base, the remainder employed a tank battalion. In all nine examples, the most common feature was the employment of a reinforced motorized rifle or tank battalion supported by an artillery battalion. In seven of nine cases, a platoon or squad of engineers was attached, and used in standard fashion for route/lane marking and/or obstacle clearing. When air defense

Figure 1

2d Motorized Rifle Battalion Attacks at Night

(map depicts attack in Example 7)

Table 1

Example	1	2	3	4	5	6	7	8	9
Attacker	MRB	MRB	MRB	TB	MRB	TB	MRB	TB	MRB
Defender	company	company	battalion	battalion	battalion	battalion	battalion	battalion	battalion
Missions: Immediate	Attack from march defeat co strongpoint	Attack from contact defeat co strongpoint	Attack from march defeat bn position	Attack from march defeat bn position	Attack from march defeat bn position	Attack from contact penetrate to bn rear	Attack from contact defeat bn position	Attack from march defeat bn position	Attack from contact defeat bn position
Subsequent	defeat bn reserve	defeat bn reserve	defeat enemy second posn	defeat bde reserve	seize a line		defeat bde reserve	defeat bde reserve	defeat bde reserve
Support Assets	Arty Bn Tk Co AT Plt En Plt NBC Sqd	Arty Bn Tk Co Aviation AT Plt	Arty Bn Tk Co En Plt AT asset AGS Plt	Arty Bn Mor Bat MRC En Sqd NBC Sqd ADA Plt	Arty Bn Tk Co AT Plt En Plt AGS Plt ADA Plt Helos	Arty Bn MRC ADA	Arty Bn Tk Co En Plt NBC Sqd AGS Plt ADA Plt	Arty Bn MRC En Sqd ADA Plt	Arty Bn Tk Co En Sqd ADA Helos
Art prep	20 min	10 min	yes	yes	12 min	yes	40 min	12 min	yes
Illumination	arty mortars LP's	avn mortars LP's	arty mortars	arty mortars LP's	NOD's, illum on contact	arty LP's	arty LP's	NOD's, illum on contact	arty mortars LP's
Dismounted Assault	yes	yes	unknown	yes	yes	unknown	yes	unknown	yes
Echelonment*	8/4	9/3	8/4	8/4	8/4	8/4	9/3	8/4	9/3
Smoke		arty TDA	mortars	fires	arty TDA fires	arty fires	fires	TDA	arty fires
Combat Recon Patrol (BRD)	3, 1 ea MRC	1 from 1st ech	2 from 1st ech	1 from reserve	1 from 1st ech		1 from unspec	1 from 1st ech	1 from unspec
Counter-attack	yes	yes	yes	yes	yes	yes	no	no	yes
2nd ech/res employment	on main axis 1st ech defeats X-atk	on main axis 1st ech defeats X-atk	to defeat X-atk	on main axis 1st ech defeats X-atk	at dawn to cont attack	on main axis 1st ech defeats X-atk	on main axis	on main axis	on main axis 1st ech defeats X-atk

Legend:
AT antitank
ADA air defense artillery
AGS automatic grenade launcher
LP light post
NOD night observation device
MRB motorized rifle battalion
MRC motorized rifle company
TB tank battalion
TDA termodymovaya apparatura [smoke-generating device] (tank-mounted)

* Expressed in maneuver platoons per echelon. One echelon plus combined arms reserve in 1 and 4, two echelons in remainder.

elements were attached, they were always given the mission to engage enemy illumination as well as aircraft. When present, the automatic grenade launcher platoon was attached to the first echelon forces or placed immediately behind them under the control of the battalion commander. Although an NBC reconnaissance element was present in some cases, there was no particular attention given to it, indicating that it performed its standard mission.

In a majority of cases the immediate mission was to attack from the march to penetrate an enemy battalion-sized defensive position. In a third of the cases, the map depicted the Soviet force attacking with boundaries narrower than the defending battalion, thus only partially engaging the two forward defending companies. In another third of the cases, the Soviet force attacked with boundaries which coincided with the defending battalion's boundaries. The subsequent mission, either stated or indicated by maps, was generally to penetrate the enemy brigade reserve in conjunction with adjacent attacking units. Two points become obvious from these examples. First, there was never a statement of the mission in terms of width or depth of penetration in kilometers, and the orientation was never on a terrain feature, but always on an enemy force. Second, rarely did a single Soviet battalion conduct a night attack in isolation. Generally it was depicted, albeit notionally, as part of a regimental-sized or larger night offensive.

Every attack was preceded by an artillery preparation lasting at least ten minutes. Initial fires were always directed against known and suspected targets on the forward edge of the enemy defenses. Therefore it is reasonable to conclude that the Soviets rarely conduct night attacks by a battalion-sized element without artillery preparatory fires and adequate reconnaissance. The same can be said of illumination. In two examples, the Soviets went into battle using night vision devices, with illumination on call. In one case (Example 5), the enemy's early detection of the attack forced the Soviet commander to revert to illumination for the initial assault. In the other case (Example 8), the tanks and BMPs used night sights, but still relied on illumination reference points to maintain direction. Illumination was delivered by airplanes in Example 2 and helicopters in Examples 5. In all cases save one (Example 3), motorized rifle troops established light posts. In most cases, therefore, Soviet night attacks are initiated under illumination, and in all cases illumination is available and used if needed.

In six of nine attacks, the Soviet force conducted a dismounted assault on the enemy positions. In the remaining three cases, the text referred to "line of attack", but did not indicate that troops dismounted. One can conclude from this that in most, if not all, night attacks, the Soviets plan for and use dismounted motorized rifle troops in their initial assault on enemy positions. Common to two-thirds of the attacks in this analysis was Soviet use of smoke, either to mask their own

movements, or to blind the enemy. Smoke was generated from three principal sources: artillery/mortar shells, natural fires started by incendiary shells, and on-board tank smoke generators.

Regarding force echelonment, analysis indicates that in all cases the first echelon contained at least two-thirds of the combat power. This clearly supports the principle of giving the first echelon enough strength to accomplish its mission without reorganization. Commitment of the second echelon or reserve was always planned and carried out, either on the main axis to maintain the tempo of advance, or to defeat the enemy counterattack. Eight of nine Soviet battalion commanders sent out at least one combat reconnaissance patrol (BRD). This patrol was normally a platoon from the first echelon, which had the mission to find the enemy counterattack force. One commander was taken to task for sending out <u>just one</u> BRD (Example 7). In seven of nine cases, the enemy conducted a counterattack, which was defeated by a combination of artillery fire, direct fire, and maneuver. The Soviet commander always considered the likelihood of a counterattack in his plan, and was never surprised when it occurred.

Based on the analysis of these nine examples, a composite Soviet night attack can be constructed which in every way reflects the theoretical model. The attacking force is a reinforced battalion of combined arms composition organized into two echelons, with a heavy first echelon and a second echelon or reserve. The attack is preceded by an artillery preparation and

conducted under full illumination. The initial assault on the enemy position contains a dismounted element. A combat reconnaissance patrol deploys to locate the counterattack force, which in turn is defeated by a combination of fire and maneuver. The second echelon or reserve is normally committed, either on the main axis or against the counterattack. The Soviet reinforced battalion is generally prepared to continue the attack at dawn.

VULNERABILITIES OF A SOVIET NIGHT ATTACK

Analysis of the theory and practice of the Soviet reinforced battalion night attack identifies several training weaknesses and theoretical vulnerabilities. The Soviets openly discuss training weaknesses in their tactical-level military periodical journals. Theoretical vulnerabilities, on the other hand, are rarely discussed in the Soviet open press.[34]

Training deficiencies

Training deficiencies in night operations are a recurring theme in the Soviet military press. One critic, a major general, observed in a 1979 article:

> Night exercises are conducted irregularly, the proven principle of training - from the simple to the complex - is not observed. There is not a strictly adhered to system in the training of troops for night operations. The troops have been poorly conditioned in the skills of battlefield orientation and observation, in determining target range and designation, in the skillful utilization of night and day sights. Driver-mechanics and vehicle commanders have poorly mastered the driving of BMPs, BTRs, and

> tanks using night vision devices, and under conditions of blacked-out lights.[38]

The author then criticized commanders who did not conduct active combat operations in night exercises, but instead limited their activities to a march or reinforcement of an already-seized position. Some commanders rarely used artillery and mortar units for illumination support of night exercises and training. When illumination was employed, it was often delivered inaccurately, and served only to unmask friendly troops and interfere with their use of night vision devices. The author complained that tank gunnery training was poorly organized, sometimes extending into the daylight hours, and thus denying units the practice they needed in night firing. He further criticized the "timid" use of navigational devices.

He indicated that officers and sergeants were insufficiently trained in the tactical and technical characteristics of illumination, signal, and night vision devices, and as a result experienced serious difficulties conducting and adjusting fire. Norms pertaining to tactical training, weapons firing, technical training, defense against weapons of mass destruction, engineer training, military topography, field medical training, and other subjects of training at night exercises were poorly developed in a number of cases. Finally, according to the author, there were some problems in the training facilities themselves.

> Not everywhere yet does the training material-technical base support the qualitative and effective training of troops for the conduct of night operations. In some places the demands for properly prepared and equipped target areas on range complexes, and moving

target ranges, especially for the conduct of live fire tactical exercises, have not been completely fulfilled.[36]

Another article in the same journal addressed inadequacies in tank gunnery training.[37] The author observed that soldiers displayed poor observation and target detection skills, an inability to "sense" rounds [universal tanker jargon for observing the precise strike of projectiles in the target area, necessary for adjustment of subsequent shots -JG], and failure to make subsequent adjustments. He blamed inadequate leadership for these observed training weaknesses. Specifically, officers and sergeants did not organize and conduct the exercise properly, they did not devote sufficient attention to the principles of night firing and, worst of all, they did not observe and critique the gunners on an individual basis.

Tank gunnery training was also the subject of a 1980 article, in which a major general criticized the sporadic, occasional occurrences of night exercises, the failure to observe methodological sequences in training, the low organizational level of night gunnery training in some units, and the inadequate attention given to the achievement of norms under night conditions.[38] He also criticized tank and BMP night-driving training, in that headlights and searchlights were being used instead of night vision devices. He criticized vehicle commanders and drivers for their inadequate mastery of the BMP navigational apparatus. On a larger scale, exercises were poorly planned, leaving little daylight to the commander for terrain reconnaissance. Some units, due to the fear of the commanders to

conduct any kind of maneuver in darkness, either acted passively, or conducted only straight-line movement. These criticisms were quite similar to those made eighteen months earlier by another general officer.

A 1981 article again noted driving and navigational problems in an exercise.[39] During a night attack by a motorized rifle battalion, two platoons of the company on the main axis strayed off course due to a loss of orientation.

Night training was the subject of the lead article in the August 1982 edition of Voyennyy vestnik [Military herald]. The author, Commander of the Carpathian Military District, addressed several training deficiencies in his units.

> In these units night training is organized simplistically, without a strict system. Tactical drill excercises planned for darkness frequently carry on into the day. Navigational apparatuses are not used. Night training, group exercises, and tactical flights with sergeants, warrant officers,and officers are conducted irregularly. As a result, many of them do not have simple skills in organizing combat under these conditions, and are not able to accomplish the reliable destruction of the enemy by fire, conduct coordination, exercise command and control of subunits and fires, and organize illumination support.[40]

The author went on to say that in night exercises, units were often totally inactive or accomplished only simple movements, and once again surfaced general inadequacies in night driving and firing.

A January 1983 article provided additional evidence that night orientation/land navigation is a serious and widespread problem in Soviet tank and motorized rifle units.[41] The article addressed the training of officer cadets at the Leningrad

Advanced Combined Arms Command School in the proper conduct of a night attack by a BMP platoon from the march. In the practical application portion of this lesson, the squad on the main axis of the platoon failed to observe strictly the illumination reference point, and thus the platoon did not maintain its axis of attack. In addition, the cadets demonstrated weak knowledge of SOPs, had difficulty working with maps, were weak in terrain orientation, and had not mastered the use of BMP navigational apparatus. The significance of these officer cadets' training weaknesses is multiplied by the crucial role junior officers play in individual and small unit training in the Soviet Army, which lacks a professional noncommissioned officer corps.

Several months later, another lead article criticized training proficiency in night operations in two widely separated military districts.[43] In a night motorized rifle unit exercise in the Baltic Military District, command and control was "shaky", illumination support was "primitively" organized, company light posts were not established, and many troops had not learned how to utilize their equipment and weapons, in particular how to employ illumination, to use light-signalling and night vision devices, or how to move on an azimuth during periods of darkness. In the Central Asian Military District, battalion tactical exercises did not always include dynamic night combat operations. The article singled out one particular company-level exercise, where the exercise director assigned a vague mission, and

provided neither illumination nor communications equipment. As a result, he lost control of the training unit.

More recently, a 1987 article describing a company-level night attack exercise in Group of Soviet Forces Germany listed as common training deficiencies the following: maintaining orientation and direction; using night vision devices and means of illumination; controlling weapons firing; and maintaining coordination among units.[43]

Thus, Soviet military professionals admit to a number of deficiencies in the training of their leaders and soldiers in night operations.[44] Principal among them are orientation and navigational difficulties, insufficient individual training of soldiers in skills pertaining to employment of weapons and equipment, planning and execution of illumination support, and the ability or even willingness of commanders to maneuver their units aggressively during conditions of darkness. Having admitted these deficiencies, the Soviets appear to be making continuous efforts to correct them. In 1984, Colonel General V. Merimskiy, at that time Deputy Commander-in-Chief of Ground Forces for Combat Training, stated that "Instruction of subunits in night operations is one of the most important missions of combat training."[45] The two examples he presented as models of night training were a squad in the defense, and a motorized rifle battalion in the defense which went over to the attack.[46]

A July 1985 article provided another indication of serious interest in night training. Writing about the field training

program of Group of Soviet Forces, Germany, Colonel General Krivosheyev, Chief of Staff, stated that not less than 30 per cent of field training time was dedicated to night training.[47] As an example he referred to a one-night training exercise for tank units, in which they were alerted, moved to a suitable training area, and put through a controlled live-fire exercise to verify their combat proficiency in night fire and maneuver. Another article in 1988 detailed the frequency of night training for motorized rifle units in the Group of Soviet Forces, Germany. Squads and crews train once a month for three-four nights; platoons once quarterly for four-five nights; companies and batteries once in each training period for five-seven nights; and battalions once annually for seven-ten consecutive nights.[48] But because of the constant turnover of enlisted personnel in Soviet units, and the absence of an experienced noncommissioned officer corps, these problems, which appear to be typical both over time and geography, will never completely go away.

Theoretical vulnerabilities

A theoretical vulnerability is an aspect of the night attack which, in the author's opinion, even if executed according to established norms, might render the Soviet tactical operation vulnerable to detection, disruption, or defeat. Vulnerabilities range throughout the preparation for and conduct of a night attack. The first period of vulnerability occurs during the preparatory phase, normally still during daylight, when the

Soviet commander is conducting reconnaissance with his subordinate commanders. Their activities are directed primarily at pinpointing the disposition of enemy forward positions, command posts, and firing positions of direct and indirect fire weapons. To reduce this vulnerability, the Soviets, whenever possible, use the assets of the unit in contact.

Soviet reconnaissance efforts can be countered in three ways. Opposing maneuver forces must be alert to the presence of Soviet reconnaissance parties. When detected, they can be engaged by indirect or direct fire. Reconnaissance parties should be eradicated from temporary or alternate direct fire positions, to prevent disclosure of primary positions. A second counter to Soviet reconnaissance is to deny them the opportunity to collect information. Defending units should observe good principles of operational security (OPSEC), especially those which pertain to camouflage and concealment. Since the Soviets will always be able to observe a certain amount of activity, the third counter is to resort to additional measures to complicate Soviet reconnaissance. A defending unit should provide false information, by constructing dummy barriers and firing positions, operating false radio nets, and moving combat vehicles and units in such a manner as to portray its disposition falsely. Such activities may be beyond the resource capability of a company/team commander and, therefore, require the support of higher command levels. Every defensive plan should contain within it an OPSEC and a deception plan, coordinated within the

context of a higher deception plan, which will help to defeat Soviet reconnaissance activities.

The next period of potential vulnerability occurs when the Soviet attacking force begins the prepositioning of indirect and direct fire weapons systems. In an attack against prepared positions, the Soviets must preposition regimental and divisional artillery units used to fire large-scale preparations. This movement must be detected in order to provide early warning to the defending unit and the possibility of implementing countermeasures. A NATO defending battalion task force commander probably has access only to assigned or attached ground surveillance radar, and therefore has to rely on information acquired by the technical resources of higher headquarters. For immediate intelligence, the defending battalion commander relies on reports from his own frontline soldiers. Their ability to recognize Soviet tanks, BMPs, and self-propelled artillery by sight may be good, but how many can identify Soviet vehicles by sound? At night, when limited visibility will greatly impede the visual observation of Soviet movement, NATO soldiers have to rely on other senses which may not have been trained.

The decision to disrupt a Soviet night attack during the positioning phase must be taken only after consideration of Soviet intentions versus the risk of disclosure of one's own defensive positions. The possibility always exists that the Soviet commander is maneuvering for the sole purpose of drawing fire, so as to acquire targeting data. The defending commander

must weigh this factor against other indicators, including his own preparedness to withstand an attack. Because Soviet night attacks tend to be conducted from the march, there will be a high density of combat vehicles and units just at that point where the attacker passes through the forward unit. If the defender can detect this moment in both time and space, he can inflict serious damage on concentrated enemy forces with any combination of surviving appropriate weapons.

If the Soviet commander for any reason does not reposition any units or fire support assets, or the defending commander does not take note of Soviet repositioning, the first indication of a night attack will be the artillery preparation, during which Soviet engineer troops force passage through the defender's barrier systems. Defending units must therefore be physically and mentally prepared to engage these engineer troops, even as the artillery rounds fall around them. They must be well entrenched, with overhead cover, and be conditioned to keep the barrier system in their sights. The artillery preparation itself renders Soviet artillery and mortar firing positions vulnerable to counterbattery fires. Given the Soviet dependence on indirect fires for illumination and combat support, effective counterbattery fires could disrupt the attack in its initial stages.

Because NATO combat units probably enjoy a technical superiority in night vision devices, and the Soviets prefer to attack under full illumination, defending units should not strive

to "out-illuminate" a Soviet night attack. Their artillery effort would be much better spent in firing high explosive rounds at the attacking enemy and his sources of illumination support. But there is something to be gained in throwing some illumination back at the attacking force. For the defending troops, even though they are equipped with a plethora of relatively effective night vision devices, illuminating the enemy provides a great psychological boost. Since not every weapon, especially at the individual level, is night-sight equipped, illuminating the enemy will also improve the effectiveness of the defenders' small arms fires. A second advantage of this technique is that it causes Soviet air defense systems to engage parachute flares with both guns and missiles. Soviet doctrinal and training publications stress this mission for air defense assets.[49] Every bullet, shell, or missile fired at a flare is one less fired at a ground or aviation target. It also discloses the location of Soviet antiaircraft weapons, which can then be targeted. This tactic should be considered prior to the employment of close air support by the defending unit.

One of the major training deficiencies of Soviet units is that of night land navigation and terrain orientation. A defender can exploit this vulnerability by imitating Soviet navigational aids. Soviet units maintain direction (azimuth) through periodically fired artillery marking rounds on the main axis. If the defending unit duplicates the type of round being fired, be it an illumination round, a smoke air burst, or a star

cluster, the Soviet force possibly can be misoriented. Imitative deception through pyrotechnics may also be used to confuse the Soviets as to the precise location of their own interunit boundaries.

If the attack succeeds in penetrating the initial defensive positions, the Soviet commander sends out one or more platoon-sized combat reconnaissance patrols (BRD). The defending commander must plan to detect and destroy these patrols, and in so doing deny the Soviet commander knowledge of the disposition of reserves, counterattack forces, or subsequent positions. How best to defeat the BRD? Leaders down to platoon level must know of its existence and mission, and anticipate its use. Company/team commanders should have a contingency plan to neutralize the BRD when it is discovered in their zone. Battalion task force commanders must actively seek out BRDs, and plan for their destruction, either by fire or maneuver forces, keeping in mind the Soviet tendency to utilize minefields and ambushes. If the Soviet commander is denied information on the disposition of the defender in depth, he has to slow the tempo of his attack. He is then more vulnerable to interdicting artillery or aviation strikes, and the defender has more time to consolidate his defense.

According to exercise experience, the Soviet commander normally commits his second echelon or reserve to gain his final objective line or continue the attack at daylight. The defending commander should, therefore, anticipate its use and plan

accordingly. He should attempt to discern as early as possible its size, composition, and route and location of deployment, keeping in mind that the Soviet commander introduces it after the initial company positions have been penetrated in a prepared defense, or after the initial battalion position has been penetrated in a hasty or partially prepared defense. Based on this information and forces available to him, the defending commander can plan a response to defeat this fresh Soviet attacking force.

Finally, the defending unit must do everything possible to force the Soviet attacker to dismount early and stay dismounted. Obstacles must be placed in front of, between, and behind initial defensive positions. Keeping Soviet troops out of their vehicles will exacerbate their already acute command and control problems. It will greatly diminish their rate of advance, physically exhaust them, and make them more vulnerable to artillery and small arms fires.

CONCLUSIONS

A night attack by a Soviet motorized rifle or tank battalion is conducted according to a theoretical model which has changed little over the past decade. Its salient characteristics are active pre-battle reconnaissance, attack from the march, dismounted assault under continuous illumination, deployment of combat reconnaissance patrols into the defender's depth,

commitment of a second echelon, and penetration of the defending brigade reserve positions by dawn.

Soviet troops have displayed numerous night training deficiencies, most notably in land navigation and terrain orientation, driving, and use of night vision devices. Given the conscript nature of their force, and current two-year term of service, there are limited opportunities to undertake continuous training to overcome these deficiencies. Therefore, in the absence of substantial change to terms of service, force composition, or pre-induction/active duty/reservist training programs, the general proficiency of the Soviet Army in night operations is not likely to improve. Added to these training weaknesses are theoretical vulnerabilities which, if properly exploited, will aid in the defeat of the Soviet night attack. These vulnerabilities include susceptibility to deception during reconnaissance, over-reliance on illumination, susceptibility to imitative deception by pyrotechnics, predictibility of the employment of combat reconnaissance patrols and second echelons, and physical exhaustion of Soviet troops if they can be kept dismounted.

Clearly, surviving and defeating a Soviet night attack will depend on a study of Soviet tactical theory, an understanding of Soviet vulnerabilities, and the development of plans and methods well in advance of the requirement to use them in a future conflict.

ENDNOTES

1. N. V. Ogarkov, ed., Sovetskaya voyennaya entsiklopediya [Soviet military encyclopedia], (Moscow: Voyenizdat, 1978), 6:286--87, sv (Perekopskaya-Chongarskaya operatsiya [Perekop-Chongar operation]).

2. A particularly useful survey of Soviet night combat in World War II is contained in the article by B. Panov, Osobennosti vedeniya boyevykh deystviy noch'yu po opytu voyny [Special features of the conduct of night combat actions according to war experience], Voyenno-istoricheskiy zhurnal [Military historical journal, hereafter cited as VIZh], No. 10 (1980), 10--17. For a more recent treatment in English, see Claude R. Sasso, "Soviet Night Operations in World War II" Leavenworth Paper No. 6, (Ft. Leavenworth, Kansas: Combat Studies Institute, 1982).

3. See P. Tsygankov, Razvitiye taktiki nastupatel'nogo boya noch'yu v poslevoyennyye gody [The development of the tactics of offensive night combat in the postwar years], VIZh, No. 10 (1978), 53--61.

4. The principal source for this entire section on Soviet tactical theory is A. A. Rybian, Podrazdeleniya v nochnom boyu [Subunits in night combat], (Moscow: Voyenizdat, 1984), chapters 1 and 2, hereafter cited as Rybian, Podrazdeleniya. Material found in Rybian is summarized in V. G. Reznichenko, ed., Taktika [Tactics], (Moscow: Voyenizdat, 1984), 136--43; the same summary is reprinted with minor changes in the 1987 edition of Taktika, 260--69. D. A. Dragunskiy, ed., Motostrelkovyy (tankovyy) batal'on v boyu [Motorized rifle (tank) battalion in combat], (Moscow: Voyenizdat, 1986), 81--85, contains a short section on the night attack which has no substantial changes. A. S. Noskov, ed., Motostrelkovaya (tankovaya) rota v boyu [Motorized rifle (tank) company in combat], (Moscow: Voyenizdat, 1988), 82--83, likewise contains a short section on night attack.

5. Rybian, Podrazdeleniya, 21, section entitled "Means Which Support the Conduct of Combat Actions at Night". Intentionally or not, Rybian omitted the mention of lasers, which have great utility in modern night combat. Lasers can be used to designate targets, determine range, and disable or destroy night vision devices, as well as the vision of human observers.

6. 'Active' night vision devices are those which emit some type of signature, such as infrared searchlights, weapon sights, and drivers' periscopes. 'Passive' night vision devices are those which do not give off a signature, but instead, for example, amplify ambient light (starlight scope) or sense heat differential (thermal sight).

7. Rybian, Podrazdeleniya, 31--33.

8. For tanks, the Soviets use the figure of 30--50 per cent more time and ammunition, and 30 per cent degradation in maneuverability at night. For artillery, the corresponding figures are 25--30 per cent and 20--30 per cent. Ibid., 12--13. Just from the ammunition requirements alone, one can see that extended or continuous night combat places a significant additional burden not only on the individual soldier, but also on the logistic system.

9. On a much larger scale, this was the case with the 8th Guards Army in October 1943, attacking strong German defenses in front of Zaprozh'ye. Facing powerful 'Tiger' tanks and 'Ferdinand' assault guns, and lacking adequate supplies of artillery ammunition, the army commander first ordered the night infiltration of assault groups to destroy German armor, then a night offensive by his entire army. Attacking at night allowed the army commander to use a short (ten-minute) artillery preparation, and at the same time denied the Germans the ability to employ their superior armor firepower. See V. I. Chuykov, V boyakh za Ukrainu [In battles for the Ukraine], (Kiev: Politizdat Ukraine), 96--97.

10. In Russian, s khodu. This does not at all imply a meeting engagement, but rather that the Soviet unit is coming forward from an assembly area or previously-gained objective, with control measures enroute to guide its commitment into combat against an enemy force which has established a hasty or prepared defensive position.

11. Rybian, Podrazdeleniya, 38.

12. A reinforced tank or motorized rifle battalion will as a minimum include an artillery battalion, a motorized rifle company for a tank battalion, a tank company for a motorized rifle battalion, and other combat and combat support attachments as required (see Table 1 for examples from exercise experience).

13. For a more complete discussion of Soviet mission depths, see Lester W. Grau, "Changing Soviet Objective Depths: A Reflection of Changing Combat Circumstances," Soviet Army Studies Office, Fort Leavenworth, Kansas, March 1989.

14. Rybian, Podrazdeleniya, 42.

15. Ibid., 45. Although the Russian here is somewhat ambigious [unichtozheniye ego sredstv svetovogo obespecheniya], the point is made unequivocably later in the text: V sluchaye primeneniya protivnikom dlya osveshcheniya svetyashchikh aviatsionnykh bomb oni porazhayutsya ognem zenitnoy artillerii i krupnokalibernykh pulemetov, a v isklyuchetel'nykh sluchayakh i zenitnymi raketami

maloy dal'nosti deystviya [In the case of enemy utilization of aircraft-dropped flares for illumination, they can be destroyed by antiaircraft artillery and large-caliber machineguns, and in exceptional cases also by short-range antiaircraft missiles.] (87) Exercise analysis confirms this use of air defense weapons.

16. Ibid., 47. For a detailed illumination plan for a motorized rifle battalion's night attack, see Yu. Struchkov, and A. Yatsenko, "Svetovoye obespecheniye boya" [Illumination support of battle], Voyennyy Vestnik [Military Herald, hereafter cited as VV], No. 3 (1988), 26--28.

17. Rybian, Podrazdeleniya, 50.

18. A good English equivalent would be "illumination team". Using hand-fired rockets of various sizes, a company light post can illuminate an area of immediate concern to the company commander. Normally one or two will be specified for each company attacking in the first echelon.

19. Despite their utility in this role, Soviet sources do not discuss the use of laser-emitting devices in this context. Incendiary-caused fires are a multi-purpose weapon. The light illuminates the surrounding terrain, favoring the attacker. The flames themselves may ignite stored fuel, ammunition, camouflage, fortifications, and combat vehicles. The smoke produced can mask enemy observers, and disable or distract individual enemy soldiers. The heat generated may render less effective the defenders' thermal sights. The Soviets, and the Russians before them, have a long history in the use of fire as a weapon in war. Incendiary-caused fire is noted in the historical example which accompanied the night attack described in V. Godun, Batal'on nastupaet noch'yu [The battalion attacks at night], VV, No. 11 (1982), 27.

20. A. S. Noskov, ed., Motostrelkovaya (tankovaya) rota, 82.

21. Rybian, Podrazdeleniya, 79.

22. Ibid., 83.

23. Soviet sources do not explain why the artillery preparation is generally shorter at night, given that more time and ammunition are required for effective fire. Perhaps the elements of shock and surprise, which favor a brief preparation, are deemed as important as target effect, which would require a longer preparation.

24. Rybian, Podrazdeleniya, 86.

25.25. A BMP-2 with mine plow is pictured in Soldat und Technik (December 1988), 736.

26.26. Beginning with the T-55, all Soviet tanks have stabilization systems.

27. All Soviet tanks beginning with the T-55 have a termodymovaya apparatura [smoke-generating apparatus]

28. The BRD is discussed more fully in F. I. Gredasov, Podrazdeleniya v razvedke [Subunits in reconnaissance], (Moscow: Voenizdat, 1988), 182--85.

29. Rybian, Podrazdeleniya, 92.

30. Several pre-battle formations are available to the Soviet battalion commander, which resemble a line, a wedge, and an echelon right or left. Tanks usually lead, with other combat and support systems placed according to the commander's order. The interval between units depends on the terrain and enemy situation, but always supports the rapid deployment of the unit into a combat formation. See N. V. Ogarkov, ed., Sovetskaya voyennaya entsiklopediya [Soviet military encyclopedia], (Moscow: Voenizdat, 1978), 6:501, sv (Predboyevoy poryadok [precombat formation]).

31. D. A. Dragunskiy, ed., Motostrelkovyy (tankovyy) batal'on v boyu, 78.

32. Rybian, Podrazdeleniya, 99.

33. The number preceeding each source corresponds to the example number in Table 1.

1 A. Zheltoukhov, "Nastupayet motostrelkovyy batal'on" [A motorized rifle battalion attacks], VV, No. 2 (1974), 34-38.

2 M. Kontseropyatov, "Bez pauz - dnem i noch'yu" [Without pauses - day and night], VV, No. 3 (1980), 32-35.

3 A. Rybian, "Pod pokrovom nochi" [Under cover of night], VV, No. 8 (1982), 19-22.

4 V. Godun, "Batal'on nastupayet noch'yu" [Battalion attacks at night], VV, No. 11 (1982), 27-30.

5 I. Semerikov, and A. Chulanov, "Batal'on nastupayet noch'yu" [Battalion attacks at night], VV, No. 3 (1983), 19-23.

6 V. Gordeyev, "Men'she pauz pri perekhode ot dnevnykh deystviy k nochnym" [Fewer pauses during the transition from day to night operations], VV, No. 4 (1983), 22-24.

7 K. Babitskiy, and V. Mel'nichuk, "Atakovat' predstoyalo noch'yu" [The attack was to be at night], VV, No. 1

(1984), 25-28.

8 B. Serbeyev, "Nastupleniye tankovogo batal'ona noch'yu" [A tank battalion night attack], VV, No. 2 (1985), 25-28.

9 Yu. Struchkov, A. Yatsenko, "Svetovoye obespecheniye boya" [Illumination support of battle], VV, No. 3 (1988), 26--28.

34. For purposes of this discussion, a theoretical vulnerability is an aspect of the night attack which, even if executed according to established norms, in the author's opinion might render the Soviet tactical operation vulnerable to detection, disruption, or defeat.

35. K. Kurenkov, "Sovershenstvovat' nochnuyu podgotovku" [Improve night training], VV, No. 2 (1979), 42.

36. Ibid.

37. N. Dudin, "Tankisty uchatsya strelyat' noch'yu" [Tankers learn how to fire at night], VV, No. 2 (1979), 70-72.

38. L. A. Ryazonov, "Sovershenstvovat' nochnuyu podgotovku" [Improve night training], VV, No. 9 (1980), 22-25.

39. Yu. Kulishov, "Nastupayet motostrelkovyy batal'on" [A motorized rifle battalion attacks], VV, No. 6 (1981), 17-20.

40. General Colonel V. Belikov, "Uchit'sia voevat' noch'iu" [Learn to fight at night], VV, No. 8 (1982), 3.

41. V. Luk'yanchuk, "Uchim kursantov deystvovat' noch'yu" [We teach officer cadets to operate at night], VV, No. 1 (1983), 47-48.

42. "Nochnaya podgotovka voysk" [Night training of troops], VV, No. 8 (1983), 2-5.

43. S. Yermolenko, "Motostrelki nastupayut noch'yu" [Motorized rifle units attack at night], VV, No. 4 (1987), 24-27.

44. Because these training weaknesses are exposed with such regularity, one should not presume that Soviet units can do nothing well at night. Rather, the Soviet habit of samokritika [self-criticism] in the military press serves to highlight those aspects of military training which are most difficult to execute well, and thus need continual training emphasis.

45.45. V. A. Merimskiy, Takticheskaya podgotovka motostrelkovykh i tankovykh podrazdeleniy [Tactical training of motorized rifle and tank subunits], (Moscow: Voyenizdat, 1984), 43. The exact same material is reprinted in the 1987 edition of

Merimskiy's book, 43--45.

46. Ibid., squad in the defense, 75-81 (1984 edition), 90-97 (1987 edition); MRB exercise, 196-216 (1984 edition), 291-314 (1987 edition).

47. G. Krivosheyev, "Polevoy vyuchke - vysokoye kachestvo" [High quality for field training], VV, No. 6 (1985), 20-23.

48. Yu. Groshev, "Nepreryvnyye nochnyye zanyatiya" [Continuous night exercises], VV, No. 4 (1988), 33-37.

49. Specific mentions were made of this use of air defense weapons in examples 4 and 8.