AD-E750169

2

AD A115366

U.S. ARMY RUSSIAN INSTITUTE

ЗА ЛУЧШЕЕ БУДУЩЕЕ

STUDENT RESEARCH REPORT

FIELD ARTILLERY SURVIVABILITY:
The Soviet Perspective

CPT Keith W. Dayton
1981

GARMISCH, GERMANY

APO NEW YORK 09053

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DTIC
ELECTE
JUN 9 1982
S D
H

DTIC FILE COPY

USARI Form 1
5 Mar 79

82 06 04 100

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER
USARI-1150

2. GOVT ACCESSION NO.
AD-A115 366

3. RECIPIENT'S CATALOG NUMBER

4. TITLE (and Subtitle)
FIELD ARTILLERY SURVIVABILITY: The Soviet Perspective

5. TYPE OF REPORT & PERIOD COVERED

6. PERFORMING ORG. REPORT NUMBER

7. AUTHOR(s)
CPT Keith W. Dayton

8. CONTRACT OR GRANT NUMBER(s)

9. PERFORMING ORGANIZATION NAME AND ADDRESS
US Army Russian Institute
APO NY 09053

10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS

11. CONTROLLING OFFICE NAME AND ADDRESS
Office of the Director of Instruction
US Army Russian Institute

12. REPORT DATE
January 1981

13. NUMBER OF PAGES
31

14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)

15. SECURITY CLASS. (of this report)
UNCLASSIFIED

15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)
Approved for public release; distribution unlimited

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

18. SUPPLEMENTARY NOTES

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

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

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

FIELD ARTILLERY SURVIVABILITY

THE SOVIET PERSPECTIVE

CPT Keith W. Dayton
USAFI
26 January 1981

DTIC
ELECTE
JUN 9 1982
S D
H

CLEARED
FOR OPEN PUBLICATION

MAY 8 1981 5

1150

DIRECTORATE FOR INFORMATION
OPERATIONS AND SECURITY REVIEW (OASD-PA)
DEPARTMENT OF DEFENSE

FIELD ARTILLERY SURVIVABILITY

THE SOVIET PERSPECTIVE

CPT Keith W. Dayton
USARI
26 January 1981

DEPARTMENT OF THE ARMY
U.S. ARMY RUSSIAN INSTITUTE
APO NEW YORK 09053

FOREWORD

This research project represents fulfillment of a student requirement for successful completion of the overseas phase of training of the Department of the Army's Foreign Area Officer Program (Russian).

Only unclassified sources are used in producing the research paper. The opinions, value judgements and conclusions expressed are those of the author and in no way reflect official policy of the United States Government, Department of Defense, Department of the Army, the US Army Intelligence and Security Command, or the Russian Institute. The completed paper is not to be reproduced in whole or in part without permission of the Commander, US Army Russian Institute, APO New York 09053.

This document has been cleared for open publication by the appropriate military service or governmental agency. Interested readers are invited to send their comments to the Commander of the Institute.

GEOFFREY H. KLEB
LTC, MI
Commanding

DTIC COPY INSPECTED 2

Accession For
NTIS GRA&I
DTIC TAB
Unannounced
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or Special
A

SUMMARY

In this article the author traces the Soviet debate concerning field artillery survivability over the past ten years. It contains an analysis of the Soviet perception of the threat, followed by the Soviet response to counteract it. Special attention is given to those Soviet solutions which mark significant departures from prior existing artillery doctrine.

TABLE OF CONTENTS

INTRODUCTION 1

THE SOVIET PERCEPTION OF THE THREAT 3

THE SOVIET RESPONSE 8

CONCLUSION 19

FOOTNOTES 21

BIBLIOGRAPHY 24

INTRODUCTION

For the past decade, field artillery survivability on the modern battlefield has been a topic of vital concern for NATO military planners. Faced with a four to one Warsaw Pact advantage in artillery, NATO has debated at length the problem of how best to protect this scarce but crucial fire support asset. In an effort to summarize the debate so far, the American Field Artillery Journal recently published a comprehensive review of NATO survivability doctrine.[1] It pointed out that, although NATO artillery practice is being modified to stress greater dispersion, mobility and deceptive/protective measures, much still must be done to reduce artillery vulnerability to Warsaw Pact counterfire, air and ground capabilities. The conclusion is that there are as yet no complete answers and that field artillery survivability remains a major problem area for NATO in the 1980s.

Yet while the survivability issue is widely discussed in the West, comparatively little is written in the West about how the Soviets perceive the problem. Do they worry about it? Is field artillery survivability primarily a NATO problem about which the Soviets, with their great conventional advantage, have little need to concern themselves? Are the Soviets so rigidly tied to the doctrine based on World War II tactics of mass artillery employment that they are insensitive to the vulnerabilities of artillery on the modern battlefield?

This paper will show that the Soviets do indeed worry about field artillery survivability and that they are neither insensitive nor doctrinaire in their approach to the problem. In fact over the past

ten years there has been a vigorous debate in the Soviet military press over the nature of the threat and how best to minimize artillery vulnerability on the modern battlefield. Given the Soviet context, the answers being developed by Soviet artillerymen are somewhat radical. To some degree they parallel the answers being worked out in the West. In any event, if they are in fact translated into practice, they will have a significant impact on the future course of Soviet field artillery operations.

THE SOVIET PERCEPTION OF THE THREAT

Like their Western counterparts, Soviet artillerymen view the modern battlefield as a highly lethal environment. Neither their numerical advantage in artillery tubes nor the recent widespread introduction of self-propelled artillery has lessened their concern for the vulnerability of this primary fire support asset. To a large degree the threat perceived by the Soviets is similar to that perceived by the West. It focuses on enemy artillery, aviation and the ground threat from tanks and small infantry units. (The nuclear threat is also cited in Soviet publications but is beyond the scope of this paper.) It is axiomatic that if artillery can be located it can be attacked, and if it can be attacked it can be destroyed.

The Artillery Threat (Radar and Counterfire)

The Soviets see the enemy's artillery as the greatest threat to their own artillery on the modern battlefield. As one Soviet colonel wrote in a recent article on artillery survivability, "The main enemy of artillery is artillery. That is why the counterbattery struggle continues to be one of the primary tasks of the firing duel between artillery units (ognevoye protivoborsto)."[2]

More specifically, Soviet concern seems to center on the capabilities of modern NATO counterbattery radar and in particular the US radar set AN/MPQ-4A. This is readily apparent in an article in Znamenosets (Standard Bearer) from April 1979 entitled "Radar Location of Field Artillery". Essentially a "how it's done" discussion of the

radar set directed towards senior NCOs and junior officers, it nevertheless emphasizes that this US artillery radar can determine the location of an enemy firing unit within 30 seconds with an error of plus or minus ten meters at a range of up to 10,000 meters. Readers are warned that this radar can now be found on armored vehicles in several Western armies.[3]

The strongest statement concerning the NATO counterfire threat, however, is found in an article by General-Lieutenant of Artillery E. V. Stroganov in the November 1980 issue of Voyennyy Vestnik (Military Herald). In comments directed to the middle and upper level Soviet officer corps, Gen-Lt Stroganov warns that NATO armies have "modern radar reconnaissance stations which are able, on the first round, to fix (zasech') the projectile of the enemy firing battery in its trajectory and within 20-30 seconds, to determine the coordinates of the battery."[4] After further computing the time the enemy takes to process this data and have the guns ready to fire, Gen-Lt Stroganov concludes that with the use of this radar, enemy counterfire can "hit our firing batteries possibly as soon as 3 1/2 to 4 minutes after our first shots are fired."[5]

These few statements show that the Soviets are keenly aware of the threat to their artillery from enemy artillery. NATO counterbattery radar is rated as highly effective and the counterfire threat the most serious on the modern battlefield.

The Air Threat

Following the artillery threat, Soviet artillerymen perceive a substantial vulnerability to attack from the air. This was one of the

first threats to be considered in the early years of the survivability debate and is seen as coming from both high performance and rotary wing aircraft. Although there is a perceived danger to artillery on the move, the primary Soviet emphasis is on the threat to units in firing positions. Soviet doctrine acknowledges that, often, combat operations will be carried out in conditions where the opponent may have local air superiority. Thus as one Soviet officer noted in an article entitled "To Ensure Survivability of the Battery", "...in modern battle artillery units will find themselves in conditions of continuous and active pressure from enemy aircraft."[6] He further observed that, given the standard Soviet linear positioning of the guns on the firing position "the probability of destruction of the guns during an air attack along the front of the battery will be greater than if the guns are deployed in an arc or semicircle."[7]

This concern for artillery vulnerability to air strikes was repeated in another survivability article in October 1975. Again citing the traditional linear positioning of artillery as highly vulnerable to air strikes, the author encouraged more dispersed firing positions so that "enemy aviation is forced to destroy the firing position not as a single linear target but as a group of individual targets. Naturally the artillery's survivability is increased."[8] In case anyone missed the message, the author concluded that "the ability to find and destroy artillery has increased. This is connected with the appearance of radar location, night vision devices, air reconnaissance means and, especially, helicopters."[9]

As the above statements show, there is considerable Soviet concern over the enemy air threat. The standard linear deployment of Soviet

artillery is seen as especially vulnerable to both helicopters and high performance aircraft.

The Ground Threat

Third on the list of perceived threats to artillery are enemy tanks, airborne and small infantry units. On the modern battlefield Soviet artillerymen expect that occasionally artillery units may have to defend themselves against a ground attack. Thus almost every article on survivability contains reference to the battery's need to establish good close-in security and self-defense (neposredstvennoye okhraneniye i samooborona). Typical is a statement from an article of October 1971 where the author acknowledges that artillery will normally be operating as part of a combined arms force and therefore be included in the general scheme of defense. "However", he warns, "artillery commanders are always obliged to immediately organize close-in security and self-defense and be ready at any moment to forestall and successfully repel an enemy surprise attack."[10]

The most serious ground threat is seen as enemy tanks and Soviet artillerymen place heavy emphasis on defeating tanks by direct artillery fire as part of battery defense. For this reason "any battery, regardless of type of weapon, must present an insurmountable obstacle for tanks... One of the major requirements for artillery defense is the constant readiness of artillery of all systems to conduct fire on tanks."[11] Soviet artillerymen are constantly reminded of situations in World War II where enemy tanks frequently made surprise attacks on artillery positions. Thus battery commanders are admonished that "firing positions are selected as a rule on tank-dangerous avenues of

approach and every position is prepared for all-round defense...every gun is prepared for firing on tanks."[12]

Although lower in priority than the artillery or air threat, the ground threat remains a serious concern for Soviet artillerymen. Surprise attacks by tanks or infantry are seen as just as dangerous as counterfire or air strikes.

From the above examples, it is obvious that Soviet artillerymen are well aware of the vulnerabilities of field artillery on the modern battlefield. They rate the enemy artillery, air and ground threats as very substantial and dangerous to their own forces. Ways to counter these threats are very much at the heart of the ongoing Soviet survivability debate.

THE SOVIET RESPONSE

While the Soviet debate over field artillery survivability has highlighted artillery vulnerabilities, it has also resulted in an ongoing revision of traditional Soviet artillery practice. Old ways of employing artillery are being challenged by new methods designed to enhance survivability. So far these new ideas have centered around innovative methods of positioning artillery on firing positions, increased emphasis on artillery mobility (to include rapid displacements within and between firing positions), and methods to sharply reduce the time spent in fire missions (including discussion of more battalion as opposed to battery fire missions). On a less innovative level, there has also been a reinforcement of old survivability concepts of protection and deception, largely to counter the ground threat. The net result of these survivability measures appears to be a significant revision of existing Soviet methods of employment of artillery.

Firing Point Revision

The initial Soviet response to artillery vulnerability was to propose changes to the standard positioning of artillery on firing points. This was mainly to counter the air threat, but also served to degrade the effectiveness of enemy counterfire. Firing point revision has proven to be highly controversial and has still not been fully resolved.

The traditional Soviet artillery firing position has the guns on line with intervals of 20 to 40 meters between the individual pieces. This was based on the experience of World War II and greatly simplifies the computation of firing data and control over the unit by the senior battery officer. As late as November 1972 a Soviet author wrote in Voyennyy Vestnik that "usually the guns are deployed on the firing position in line and when possible at equal intervals and without significant echelonment. This facilitates the control of firing."[13] The linear configuration, as previously stated, however, is highly vulnerable to enemy air and counterfire.

The debate over firing position configuration began in earnest in October 1975. In an article entitled "Toward the Question of Survivability of Artillery Units", the authors asserted that "the 'broken' (lomanyy) formation better corresponds to the mobile, dynamic character of modern combat".[14] The argument was that a non-linear positioning of the guns would reduce the effectiveness of enemy air and artillery strikes. In 1976 there were several articles published in Voyennyy Vestnik discussing the pros and cons of this new concept. Favorable comment centered around the enhanced survivability the new configuration would give to a firing unit. Thus, one officer wrote that, although the traditional linear firing position facilitated the organization and conduct of fire, "at the same time it makes the firing position more vulnerable since the guns are positioned in the most dense area of the projectile sheaf." Another contributor stated that, in his unit, many of the officers agreed that in most cases it was advisable to replace the linear positioning of guns on the firing position with an irregular one because "a linear firing position has become an extremely lucrative

target for all types of fire destruction means...among them modern artillery weapons and aviation."[16] A further advantage of the new dispersed and irregular firing position was that "for destruction of guns on a firing position of 500 meters front by 300 meters depth, the enemy must use at a minimum two battalions of 155mm howitzers and about 1500 rounds."[17]

At the same time, however, there were dissenting voices. Most of them accepted the survivability argument but felt that the abandonment of the traditional linear firing position would seriously complicate the task of computing firing data and thereby slow down the battery's responsiveness. Thus one officer wrote in August 1976 that although he agreed that an irregular formation increased survivability, "Dispersion on a large scale requires individual piece corrections for each gun and thus cannot be justified since then the battery loses its significance as a combat entity; and more time would be required for the preparation to fire."[18] The common complaint was that existing Soviet gunnery procedures did not adequately address the piece correction requirements imposed by irregular positioning, and without automatic or mechanical field artillery computers at the battery level it would take too much time to obtain correct firing data. In this vein another officer from the field wrote that "the striving to increase the area of the firing position in the interests of raising survivability is to a certain extent justified. But in our view it is not advisable to get carried away with it."[19] He added that if the guns were deployed in line, then "we can use the methods for piece corrections outlined in the Rules for Gunnery (v Nastavlenii po Ognevoy Sluzhbe)."[20]

In October 1976 the deputy commander of Soviet Rocket Troops and Artillery, General-Lieutenant I. Anashkin, attempted to close the debate on firing point revision by endorsing neither the new nor the old configurations. "Evidently it is advisable to thoroughly study the recommendations about the 'irregular' distribution of the weapons on the firing position", he wrote. But then he added, "Of course the linear formation on the firing position in certain circumstances is advisable, especially during the concentration of a large amount of artillery on a narrow sector of the front." He concluded his comments with the caveat that "in dynamic and fast moving battle (e.g., in meeting engagements, in the depth of the enemy defense, in the mountains etc.) the necessity for a non-linear distribution of the weapons may arise."[21] There was evident uncertainty over firing point revision at top echelons in the Soviet command structure.

Gen-Lt Anashkin's comments were not the last word on the matter, however. In August 1978 another article appeared in Voyennyy Vestnik entitled "Toward the Question of Survivability of Artillery Batteries." In it the author asserted that "from the point of view of increasing survivability of the artillery battery...we consider that the 'broken' configuration of the battery front is in accordance with the mobile, dynamic charácter of modern battle."[22] In a September 1978 article on the employment of self-propelled howitzers in the defense, it was asserted that "the weapons of the battery in the firing position, as a rule, do not have to be positioned in a line."[23] This was followed a year later by an article giving detailed examples of how to compute individual piece corrections for guns in non-linear firing positions. The author prefaced his charts and diagrams with the comment that "a

non-linear positioning of the guns on the firing point increases the survivability of the artillery unit."[24]

And so the debate continues. Nevertheless, in light of the above excerpts it appears that Soviet artillerymen are moving away, however reluctantly, from their traditional linear firing positions in favor of something more dispersed and irregular. The reason is to enhance the firing unit's survivability and degrade the air and artillery threat. It must be noted, however, that Soviet photos of artillery in action still invariably show the guns positioned in close, straight lines.

Movement

Whereas firing point revision has caused a vigorous debate in the Soviet military press, the discussions surrounding the emphasis on more rapid and frequent movement by artillery units are more uniformly favorable. The threat being countered by this measure is again enemy artillery and aviation with the emphasis this time on artillery. Rapid and frequent movement, say the Soviets, degrades the effectiveness of counterfire.

Even before the advent of modern Soviet self-propelled artillery it was recognized that "in increasing the battery's survivability a very large role is played by timely and concealed maneuver...the emergency calling for the prime mover and rapid departure from and occupation of firing positions."[25] By the mid 1970s the introduction of new self-propelled 122mm and 152mm howitzers made rapid movement more feasible. The guns could move faster and the supported units would lose less artillery support time due to artillery being on the move. Survivability would likewise be enhanced. Emphasis was now being placed on firing a

few missions and then departing the firing position before enemy radar-directed counterfire or air strikes could destroy the firing unit.

Therefore in April 1976 Voyennyy Vestnik carried an article which stated that "movement occupies an important place in the struggle for field artillery survivability...Results show that, using intra-positional movement can raise the survivability of the battery by 15 to 20%."[26] The author concluded his article by stating that "In contemporary fast-paced battle, the role and significance of movement for ensuring artillery survivability has grown even further. The primary condition for success in this is timeliness of movement." By timeliness, he explained that he meant "when a battery, after completion of its fire mission, abandons the position before the enemy opens fire on it, or at the moment of opening fire by the enemy."[27]

The survivability aspect of rapid movement was heavily stressed. Readers were reminded that enemy artillery reconnaissance was able to find the firing battery and determine its coordinates within 2-3 minutes after it opened fire. Another two to four minutes were then required to work up firing data and two to three minutes more before the enemy guns were ready to fire. Therefore "it follows that an artillery battery firing a mission lasting 3-4 minutes will be able to complete it without enemy retaliation and begin to leave. If it takes 5-7 minutes the battery partially or completely will fall under enemy fire."[28] The message was to shoot a quick mission and then move to another firing position to escape answering enemy counterfire.

By 1978 this emerging doctrine had reached the point where the mobility of self-propelled howitzers was openly being called their

greatest survivability asset. As one author noted, "the greatest advantage of self-propelled howitzer batteries is their ability for wide mobility of their firing platoons. Frequent and rapid changing of firing positions allows for significantly raising their survivability."[29] This led the writer to suggest that self-propelled battery commanders be assigned a firing position area instead of specific firing points. Then he could select several firing positions so that "from each firing position the guns can fire 1-2 fire missions, after which the battery must abandon it."[30]

The Soviets are also giving increasing attention to movement of individual weapons within a firing position from primary locations to temporary ones. "The most realistic solution to the problems of survivability", argued one recent article, "is the movement of firing platoons on the firing positions, or rather their change (smena) after the completion of one or several fire missions. Thus in addition to the primary it is advisable to select and prepare several reserve firing positions at a distance of 300-400 meters."[31] Soviet commentators note that self-propelled artillery is much better suited to this operation than towed artillery. As one of them recently pointed out, a battery of 152mm self-propelled howitzers requires about five times less time than a similar towed battery for movement from a primary position to a temporary one and subsequent readiness to fire.[32]

Largely for survivability reasons, therefore, Soviet artillerymen are moving away from the traditional practice where a battery would occupy a firing position and displace only when it was in danger of falling out of range of supported troops. Emphasis is now being placed

on the ability to shoot a few quick missions and then rapidly displace to a new firing position.

Shorter Fire Missions

The need to save time in firing prompted by the artillery counterfire threat has led to what may be the most radical Soviet response to the survivability problem. It is now being suggested that adjust fire missions and registrations are out of date; casualties to the enemy counterbattery radar capability. Moreover, it is being suggested that batteries firing independently are too vulnerable and ineffective on the modern battlefield and that more fire missions should be accomplished by battalions firing in mass.

These ideas first appeared in an article by General-Lieutenant of Artillery Stroganov in the November 1980 issue of Voyennyy Vestnik. They subsequently received the tentative endorsement of Marshal and Commander of Soviet Rocket Troops and Artillery, I. Peredel'skiy the following month. Gen-Lt Stroganov introduces his argument with a thorough analysis of NATO counterfire capabilities and implies that as a result of their lethality, some current methods of artillery employment are out of date.[33] In particular he discusses adjust fire missions and registrations by batteries. His point is that such missions take too much time to complete, their effect is not very great and they both warn the enemy and give him ample time to prepare answering fire. He expands this argument to suggest that batteries firing alone are by their very nature highly vulnerable.

Gen-Lt Stroganov's solution is something he calls the fire strike (ognevoy udar). Simply stated, it means that all the guns of a battalion

fire at the same time on a single target. Thus the time needed to have the desired effect on the target would be sharply reduced while the density of fire would be increased. As he states it, "considering the number of rounds fired at the target, the time required for the completion of the fire mission (by the battalion) is 3-4 times less and the reliability of its completion is sharply increased."[34] The battery firing alone is perhaps out of date. He concludes that "it is completely evident that to target one firing battery (requiring from 7 to 33 minutes for its mission) in the presence of modern enemy reconnaissance means does not give the enemy much difficulty in targeting."[35] But, and this is the main point, "to locate and define with the necessary accuracy the coordinates of three batteries firing for a short period (from two to 10 minutes) and conducting fire simultaneously is far more difficult."[36]

In a follow-on article, the Commander of Rocket Troops and Artillery, Marshal Peredel'skiy agreed that the battalion was the basic artillery firing unit. He also endorsed the idea of firing missions without adjustment or registrations as a means to save time and achieve greater effect.[37] It is too early to tell if these ideas will be translated into actual practice, but if they are it will be another example of how survivability considerations are leading to far-reaching modifications of existing Soviet artillery practice.

Deceptive/Protective Measures

On a more mundane level, the survivability debate has also reinforced interest in several tried and true techniques such as camouflage, dummy firing positions, roving guns, direct fire against tanks, security

and self defense, and engineer preparation of firing positions. This has not led to significant revisions in doctrine but does illustrate how thoroughly the Soviets are considering the ground threat and attempting to counter it.

Among the tried and true survivability techniques, camouflage continues to be emphasized as foremost. Artillery units are being constantly exhorted to better observe camouflage discipline with emphasis on covering vehicle tracks into firing positions.[38] Of some interest, however, are periodic comments from commanders indicating that there are shortages in appropriate camouflage material.[39]

Widely used in World War II, dummy (lozhnyye) positions both for guns and observation posts appear frequently in survivability discussions. As one writer noted, "Heightening of survivability is assisted by the use of false gun pits and gun dummies."[40] But again there is dissatisfaction with existing materials. In complaining that the existing dummy material would not fool anyone an officer concluded that "for our camouflage measures we need not only craftiness but material support on the level of modern technology."[41]

The survivability debate has also led to the revival of the use of "roving guns" which fire from temporary firing positions and thereby deceive the enemy concerning the battery's location. As a survivability measure it is advisable, writes one Soviet officer, "to accomplish some missions (destruction, registration etc.) by means of fire from a single gun from a position 200-300 meters from the primary firing position."[42]

Engineer preparation (inzhenernoye oborudovaniye) also warrants ritual comment in any Soviet discussion of survivability, regardless

of the emphasis on rapid and frequent movement. Typical are statements such as "dispersal of the guns on the firing point with intelligent use of camouflage and thorough engineer preparation of the firing position ensures great survivability for the artillery unit,"[43] or "use of engineer preparation of firing positions can raise survivability by 40-55%".[44]

Other factors such as direct fire against tanks and close-in security and self-defense against small infantry groups are standard and taken seriously. The point to be made, however, is that these Soviet deceptive/protective measures directed at the ground threat are not very innovative and are not leading to significant changes in doctrine. Compared to ideas such as firing point revision, more rapid and frequent movement or methods to save firing time, the deceptive and protective measures are commonplace.

CONCLUSION

The past ten years have witnessed a Soviet debate about field artillery survivability that roughly parallels that in the West. Having identified the threat as coming from enemy artillery, air and ground forces, Soviet artillerymen have been undertaking a reappraisal of their traditional artillery practices in an effort to decrease artillery vulnerability on the modern battlefield.

Some of the Soviet responses are standard and show little innovation; i.e. the stressing of camouflage, direct fire etc. But in at least three areas outlined above, the debate over field artillery survivability has resulted in significant changes in Soviet artillery practice. First of all it appears that the traditional close linear firing formation is under revision. For survivability reasons it is likely to be replaced by a more dispersed and irregular positioning of the guns which presents a more difficult target for enemy air or counterfire strikes. Secondly, there appears to be an emerging doctrine of rapid and frequent movement by artillery units to minimize the effects of enemy counterbattery operations. Similar to the US practice of "shoot and scoot", it relies heavily on the mobility of modern self-propelled artillery. Finally, there are the beginnings of a consensus that fire missions must be shorter in duration if the firing unit hopes to survive. Battery adjust fire missions and registrations are no longer justified because they take too much time. A corollary of this is that battery missions in general may now be out of date and that the artillery battalion is now the primary artillery firing unit.

Not only does it take a battery more time and with less effect to attack a target, but batteries firing by themselves are simply too vulnerable to enemy counterfire.

The ongoing debate on Soviet field artillery survivability shows that Soviet artillerymen perceive the threat much as do their NATO counterparts. Their response is likewise similar. Both the Soviet Union and NATO are considering larger firing positions, greater mobility and protective and deceptive measures to enhance survivability. Both are looking for ways to sharply reduce time spent in fire missions in order to degrade the counterfire threat. (In this regard the Soviet suggestion of more battalion fire missions is ominous in that with a four to one advantage in artillery tubes, they can bring that much more fire power to bear.) Field artillery survivability is a game being played by both sides as they attempt to find those measures which can best protect what still remains the primary fire support means for the ground gaining arms.

NOTES

[1]See "Field Artillery Survivability", Field Artillery Journal, May-June 1980, pp. 8-21.

[2]Shibayev, N., "Problemu reshat' kompleksno", Voyennyy Vestnik, No. 6 (1976), p. 71.

[3]Nazarenko, V., "Radiolokatsiya polevoy artillerii", Znamenosets, No. 4 (1979), p. 30.

[4]E. V. Stroganov, "Ognevoy Udar", Voyennyy Vestnik, No. 11 (1980), p. 67.

[5]Ibid., p. 68.

[6]Ivanov, V., "Obespechit' zhivuchest' batarey", Voyennyy Vestnik, No. 11 (1972), p. 61.

[7]Ibid.

[8]Ivanov, V. and Nesterov, V., "K voprosu o zhivuchesti artilleriyskikh podraz deleniy", Voyennyy Vestnik, No. 10 (1975), p. 81.

[9]Ibid., p. 80.

[10]Baryshnikov, V., "Neposredstvennoye okhraneniye i samooborona", Voyennyy Vestnik, No. 10 (1971), p. 55.

[11]Ivanov and Nesterov, "K voprosu o zhivuchesti artilleriyskikh podrazdeleniy", p. 81.

[12]Baryshnikov, "Neposredstvennoye okhraneniye i samooborona", p. 58.

[13]Ivanov, "Obespechit' zhivuchest' batarey", p. 61.

[14]Ivanov and Nesterov. "K voprosu o zhivuchesti artilleriyskikh podrazdeleniy", p. 81.

[15]Shibayev, "Problemu reshat' kompleksno", p. 72.

[16]Kikishev, N., "Nuzhna prakticheskaya proverka", Voyennyy Vestnik, No. 10 (1975), p. 73.

[17]Krashchenko, V., "Ob opredelenii orudiynykh popravok", Voyennyy Vestnik, No. 10 (1975), p. 73.

[18]Shibayev, "Problemu reshat' kompleksno", p. 72.

[19]Vasil'ev, V., "Nuzhny prakticheskiye issledovaniya", Voyennyy Vestnik, No. 7 (1976), p. 75.

[20]Ibid.

[21]Anashkin, I., "Za kompleksnoye resheniye problemy", Voyennyy Vestnik, No. 10 (1976), p. 74.

[22]Zubkov, A., "K voprosu o zhivuchesti artilleriyskikh batarey", Voyennyy Vestnik, No. 8 (1978), p. 87.

[23]Shlyapin, Yu., "Batareya samokhodnykh gaubits v oborone", Voyennyy Vestnik, No. 9 (1978), p. 78.

[24]Akulich, V., "Opredeleniye intervalov i ustupov pri nelineynom raspolozhenii orudiy", Voyennyy Vestnik, No. 9 (1979), p. 57.

[25]Ivanov, "Obespechit' Zhivuchest' batarey", p. 63.

[26]Epifanov, I., "K voprosu o zhivuchesti artilleryiyskikh podrazdeleniy", Voyennyy Vestnik, No. 4 (1976), p. 83.

[27]Ibid., p. 84.

[28]Ibid.

[29]Barsukov, V., "Batareya samokhodnykh gaubits v nastuplenii", Voyennyy Vestnik, No. 6 (1978), p. 73.

[30]Ibid.

[31]Shibayev, "Problemu reshat' kompleksno", p. 72.

[32]Shlyapin, "Batareya samokhodnykh gaubits v oborone", p. 78.

[33]Stroganov, "Ognevoy Udar", p. 68.

[34]Ibid., p. 71.

[35]Ibid.

[36]Ibid.

[37]Peredel'skiy, G. E., "O roli i meste artilleriyskogo divisiona v boyu", Voyennyy Vestnik, No. 12 (1980), p. 63.

[38]Ivanov, "Obespechit' zhivuchest' batarey", p. 63.

[39]Ibid.

[40]Epifanov, "K voprosu o zhivuchesti artilleriyskikh podrazdeleniy", p. 83.

[41]Ivanov and Nesterov, "K voprosu o zhivuchesti artilleriyskikh podrazdeleniy", p. 82.

[42]Ivanov, "Obespechit' zhivuchest' batarey", p. 63.

[43]Krashchenko, "Ob opredelenii orudiynykh popravok", p. 74.

[44]Epifanov, "K voprosu o zhivuchesti artilleriyskikh podrazdeleniy", p. 83.

BIBLIOGRAPHY

Books

Braginskiy, R. B. (ed.) Taktika Artillerii v Boyevykh Primerakh (Artillery Tactics in Combat Examples). Moskva: Voyenizdat, 1977.

Bugayev, N. N. Nasha Artilleriya (Our Artillery). Moskva: Nauka, 1949.

Lebedev, V. Yu. Spravochnik Ofitsera Nazemnoy Artillerii (Field Artillery Officer's Handbook). Moskva: Voyenizdat, 1977.

Nevskiy, N. A. and Sergeyev, Yu. D. Deystviye Orudiya (Vzvoda) v Boyu (Operations of the Gun (Platoon) in Combat). Moskva: Voyenizdat, 1976.

Nikiforov, N. M. Uchebnik Mladshego Komandira Artillerii (Junior Artillery Officer's Textbook). Moskva: Voyenizdat, 1940.

Reznichenko, V. G. Taktika (Tactics). Moskva: Voyenizdat, 1966.

Sidorenko, A. A. Nastupleniye (The Offensive). Moskva: Voyenizdat, 1970.

Articles

"Field Artillery Survivability", Field Artillery Journal, May-June 1980, pp. 8-21.

Akulich, V. and Simakov P. "Opredeleniye intervalov i ustupov pri nelineynom raspolozhenii orudiy" (Determination of Intervals and Echelonment in the Non-Linear Positioning of the Guns), Voyennyy Vestnik (Military Herald), No. 9 (1979).

Anashkin, I. (General-lieutenant of Artillery). "Za kompleksnoye resheniye problemy" (For an All-round Solution of the Problem), Voyennyy Vestnik, No. 10 (1976).

Barsukov, V. "Batareya samokhodnykh gaubits v nastuplenii" (The Self-Propelled Howitzer Battery in the Offensive), Voyennyy Vestnik, No. 6 (1978).

Baryshnikov, V. "Neposredstvennoye Okhraneniye i Samooborona" (Close-in Security and Self-Defense), Voyennyy Vestnik, No. 10 (1971).

Bogdanov, V. "Batareya no marshe i vo vstrechnom boyu" (The Battery on the March and in the Meeting Engagement), Voyennyy Vestnik, No. 6 (1975).

Dick, Charles. "The Growing Soviet Artillery Threat", Journal of the Royal United Services Institute for Defense Studies, June 1979, pp. 66-73.

Epifanov, I. "K voprosu o zhivuchesti artilleryiyskikh podrazdeleniy" (Toward the Question of Survivability of Artillery Units), Voyennyy Vestnik, No. 4 (1976).

Epifanov, I. "V bor'be za ognevoye prevoskhodstvo" (In the Struggle for Fire Superiority), Voyennyy Vestnik, No. 8 (1978).

Fullerton, John. "Artillery Doctrine", Defense and Foreign Affairs Digest, November 1978, pp. 31-36.

Ivanov, V. "Obespechit' zhivuchest' batarey" (To Ensure the Survivability of the Battery), Voyennyy Vestnik, No. 11 (1972).

Ivanov, V. "Bor'ba s samokhodnoy artilleriyey" (Struggle with Self-Propelled Artillery), Voyennyy Vestnik, No. 10 (1973).

Ivanov, V. and Nesterov, V. "K voprosu o zhivuchesti artilleriyskikh podrazdeleniy" (Toward the Question of Survivability of Artillery Units), Voyennyy Vestnik, No. 10 (1975).

Khorolskiy, E. and Tsarenko, B. "Povyshaya zhivuchest' batarei" (Increasing the Battery's Survivability), Voyennyy Vestnik, No. 9 (1979).

Khrashchev, A. "Sokrashchat' vremya vypolneniye ognevykh zadach" (To Limit the Time for Accomplishing Fire Missions), Voyennyy Vestnik, No. 10 (1973).

Kikishev, N. "Nuzhna prakticheskaya proverka" (Practical Verification is Needed), Voyennyy Vestnik, No. 6 (1976).

Krashchenko, V. "Ob opredelenii orudiynykh popravok" (Concerning the Determination of Piece Corrections), Voyennyy Vestnik, No. 6 (1976).

Malisov, Yu. "Maskirovka - delo vazhnoye" (Camouflage - An Important Matter), Voyennyy Vestnik, No. 12 (1979).

Medvedev, N. "Podavleniye samokhodnykh batarey" (Suppression of Self-Propelled Batteries), Voyennyy Vestnik, No. 5 (1972).

Nazarenko, V. "Radiolokatsia polevoy artillerii" (Radar-location of Field Artillery), Znamenosets (Standard Bearer), No. 4 (1979).

Ott, David E., "Our Battery Positions Are Out of Date", Field Artillery Journal, May-June 1980, pp. 54-56.

Peredel'skiy, G. (Marshal of Artillery) "O nepreryvnom ognevom porazhenii v sovremennom boyu" (Concerning Continuous Fire Destruction in Modern Combat), Voyennyy Vestnik, No. 6 (1977).

Peredel'skiy, G. "O roli i meste artilleriyskogo diviziona v boyu" (Concerning the Role and Place of the Artillery Battalion in Combat), Voyennyy Vestnik, No. 12 (1980).

Rudakov, B. "Porazheniye artilleriyskikh batarey" (Defeat of Artillery Batteries), Voyennyy Vestnik, No. 12 (1975).

Saksonov, V. "Roving Gun Batteries and Their Neutralization", Soviet Military Review, November 1977, pp. 21-22.

Stroganov, E. V. (General-lieutenant of Artillery) "Ognevoy udar" (Fire Strike), Voyennyy Vestnik, No. 11 (1980).

Shibayev, N. "Problemu reshat' kompleksno" (The Problem Must Be Resolved in an All-round Manner), Voyennyy Vestnik, No. 6 (1976).

Shlyapin, Yu. "Batareya samokhodnykh gaubits v oborone" (The Self-Propelled Howitzer Battery in the Defense), Voyennyy Vestnik, No. 9 (1978).

Singayevskiy, V. "O planirovanii peremeshcheniya" (Concerning the Planning of Displacement), Voyennyy Vestnik, No. 12 (1975).

Vasil'ev, V. "Nuzhny prakticheskiye issledovaniya" (Practical Studies are Needed), Voyennyy Vestnik, No. 7 (1976).

Williams, Larry, "Soviet Self-Propelled Artillery", Armor, September-October 1978, pp. 18-20.

Zubkov, A. "K voprosu o zhivuchesti artilleriiskikh batarey" (Toward the Question of Survivability of Artillery Batteries), Voyennyy Vestnik, No. 8 (1978).

Zuykov, N. "V pritsele orudiya - tank" (In the Gun Sight - a Tank), Znamenosets, No. 6 (1979).