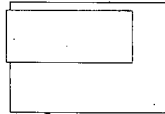


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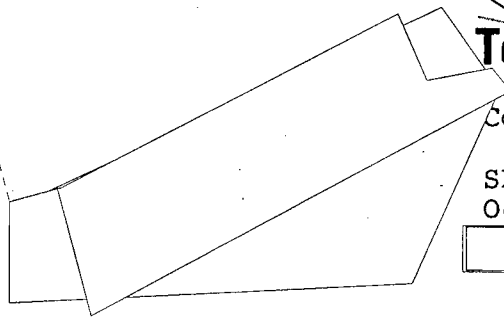
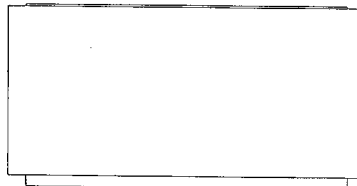
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DIRECTORATE OF
INTELLIGENCE

Intelligence Report

Size and Capabilities of Soviet Field Artillery

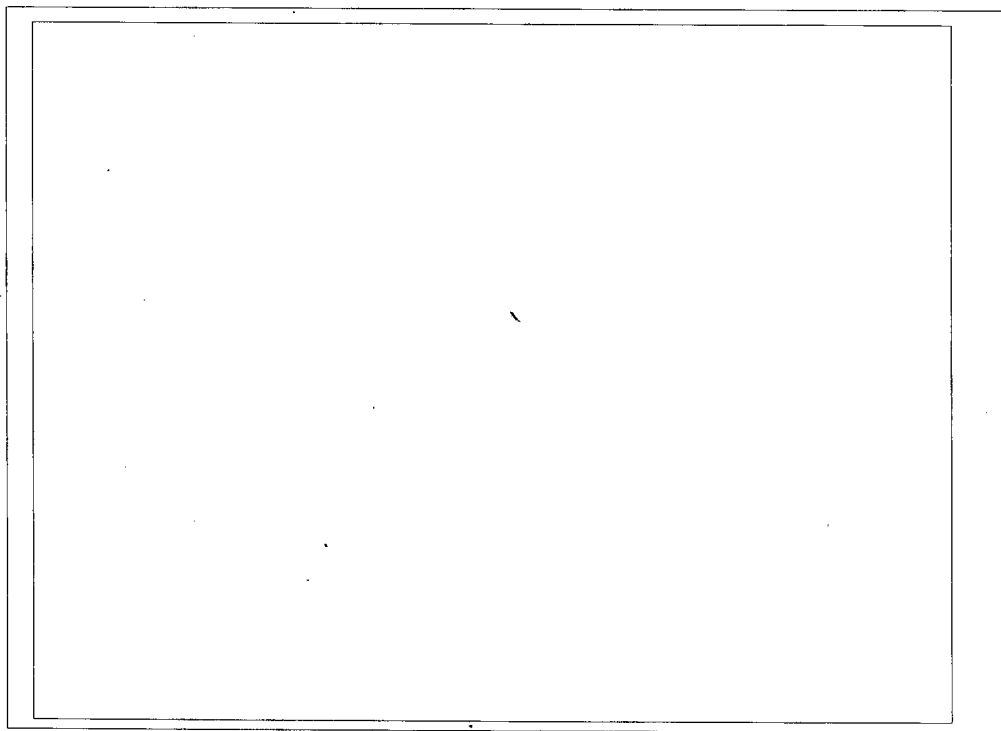


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October 1969





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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
October 1969

INTELLIGENCE REPORT

Size and Capabilities of Soviet Field Artillery

Introduction

Until recently the numbers of artillery pieces in Soviet divisions and in nondivisional combat support units were low compared with NATO standards. This condition was probably a result of the prevailing Soviet military doctrine of the Khrushchev period, which ruled out sustained nonnuclear war between major powers and emphasized an almost exclusive reliance on nuclear strikes to reduce enemy resistance on the battlefield.

Since Khrushchev's fall, the Soviets have modified their doctrine to the extent that at least some period of large scale nonnuclear war is deemed possible. During the past 2 years, [REDACTED]

[REDACTED] the artillery strength of some first line tank and motorized rifle divisions has been substantially increased. These increases, which were concurrent with the change in military doctrine, suggest that the Soviets are giving serious attention to their nonnuclear combat support capabilities.

This report assesses the evidence of the nature and scope of the artillery increases and explores the implications of these changes for Soviet military doctrine and capabilities. It also discusses the mission and strength of Soviet front and army artillery. Finally, it assesses Soviet artillery doctrine, tactics, and gunnery techniques, comparing Soviet artillery capabilities with NATO's. The conclusions begin on page 23.

Note: This report was produced solely by CIA. It was prepared by the Office of Strategic Research.

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Soviet Doctrine for Nonnuclear War

From the late Fifties until the mid-Sixties the Soviets visualized a war in Europe as nuclear at the outset and undertook to shape their theater forces to advance swiftly across Western Europe in the aftermath of a nuclear holocaust.

This concept of a quick war required less conventional fire support from artillery and tactical aircraft. Instead of massed artillery and infantry, nuclear strikes were to create gaps in NATO's defenses and destroy its reserves. Large tank forces would then pass through these gaps and advance rapidly through Western Europe, bypassing or encircling any remaining NATO forces.

The major role the Soviets foresaw for their artillery was to help reduce initial enemy resistance and supplement the nuclear fires during the breakthrough phase. Once the tank units had overcome NATO's forward defenses, they would presumably rely on their own numerous direct fire weapons and on tactical air and missile support.

By the mid-Sixties the rigid nuclear doctrine was being questioned by the growing segment of Soviet military writers who had grasped the significance of the US "flexible response" concepts. Colonel General Povaliy, planning chief of the Soviet General Staff, endorsed these ideas. Under the concept of flexible response, according to Povaliy, a state need not run the risk of nuclear war in every situation involving its allies and can pursue its own military and political objectives with the least threat to its security.

Analysis of the military press indicates that this flexible response concept has evolved into an acknowledged part of Soviet military doctrine during the past 2 years. The view that a future war may be conducted either with or without the use of nuclear weapons is no longer contested in

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the press. On the contrary, strategic force advocates who in the past have warned that any conflict with the West would inevitably and quickly escalate into a general nuclear war are now arguing that the new conventional options exist because of the present strategic nuclear relationship between the USSR and the US.

Having accepted the possibility of nonnuclear war, the Soviets probably recognized that their former breakthrough tactics, which relied heavily on nuclear fires, needed re-evaluation. Their puny artillery strength could hardly be counted on to blast holes in NATO defenses, or to stop a NATO attack.

Artillery Forces for Nuclear War

During the period between 1958 and 1961, in accordance with then prevailing doctrine, the Soviets made a series of organizational changes which resulted in a major reduction in their field artillery* strength in East Germany. [redacted]

* *The term "artillery" as used in this Report includes--where appropriate--guns, howitzers, and gun-howitzers as well as heavy mortars and multiple-round rocket launchers.*

Modern field artillery cannons include guns and howitzers as well as the gun-howitzers, which combine features of both. In general, guns have relatively long tubes and their shells achieve high velocities, giving them long range capabilities at some sacrifice in accuracy of indirect fire.

Howitzers have shorter tubes and lower shell velocities, giving them shorter range capabilities but greater accuracy in indirect fire. Howitzers and gun-howitzers are designed to achieve high trajectories, enabling them to hit targets in defilade. For convenience, the term howitzer is used in this Report to refer to both howitzers and gun-howitzers.

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Front and army artillery tubes (guns and howitzers) were cut from about 840 to 250, a reduction of more than two-thirds. About 330 multiple rocket launchers which had been part of the army artillery were entirely eliminated. When the reorganization was complete, 2 or 3 of the 6 Soviet armies then in East Germany had no army-level artillery at all and the others had sharply reduced complements.

Field artillery in the tank and motorized rifle divisions was also reduced during the same period, but less drastically. Most of the reduction was accomplished by eliminating 1 of the 2 artillery regiments in each division. The net effect was a reduction of 50 percent in tank divisions (72 tubes to 36) and one-third in motorized rifle divisions (72 to 48). Most of the artillery removed from the divisions was apparently of light caliber--85mm and smaller--and 160mm mortars. The number of 122mm and 152mm howitzers remained about the same.

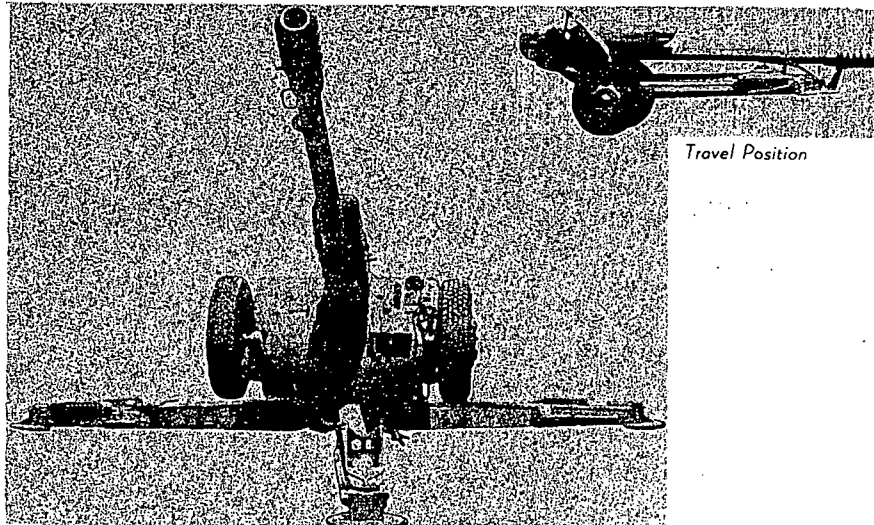
The reduction in artillery in the Group of Soviet Forces in Germany (GSFG) coincided with the introduction of a ground launched tactical nuclear delivery capability in East Germany. Although the presence of Frog tactical rockets and Scud tactical missiles was not confirmed until 1962, these systems probably began entering East Germany in 1960 or 1961. The reorganization was clearly a reflection of the then new Soviet doctrine on the inevitability of a nuclear exchange in any war with NATO and the primacy of massive nuclear strikes for eliminating organized resistance on the ground in Europe.

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Typical Soviet Field Artillery Pieces

D-30 122mm Howitzer (M-1963)

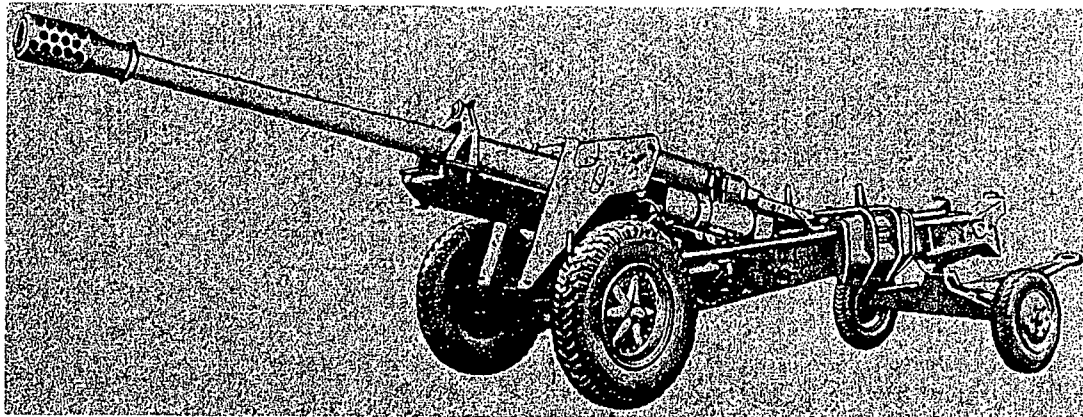


Travel Position

Weight	3.5 tons
Maximum rate of fire	8 rpm
Maximum range	16,740 yds

Rests on three trails and central jack when in firing position, gaining stability. Towed by barrel with trails folded. New shell gives direct-fire antitank capability. Since 1963, the D-30 howitzer has been replacing earlier model 122mm howitzers—the principal artillery weapon in Soviet tank and motorized rifle divisions.

M-46 130mm Field Gun



Weight	9.4 tons
Maximum rate of fire	7-8 rpm
Maximum range	29,500 yds

The most common weapon in Soviet front and army artillery units.

[redacted]

A confident estimate could not be made of field artillery order of battle inside the USSR at the time of the reduction, but there were tentative indications [redacted]

[redacted] that a reduction of artillery was also carried on in the USSR.

Even now the extent of the reduction in artillery units in the USSR at that time cannot be established. Overhead photography acquired recently has made possible a good estimate of the number and sizes of currently existing large artillery units there, but did not provide adequate data on such units prior to 1965. Storage depots in the USSR containing some 6,000 apparently surplus artillery pieces have been identified in recent years, however, indicating that a large overall reduction did occur sometime in the past. Most of these weapons are probably obsolete or obsolescent models, but many of them could probably be restored to active service in a period of several months if the Soviets decided to make a large expansion of their artillery strength.

Recent Increases in Division Artillery

From the early Sixties through 1966 [redacted]

[redacted] Soviet tank divisions in East Germany had 36 122mm howitzers. Motorized rifle divisions also had 36 122mm howitzers and, in addition, 12 152mm howitzers. Each motorized rifle regiment had 15 120mm mortars, making a total of 45 in each motorized rifle division and 15 in each tank division.

In addition to their howitzers and mortars, each motorized rifle and tank division in GSFG had a battalion of 12 multiple rocket launchers. The motorized rifle divisions were equipped with BM-14s (140mm 16-tube truck-mounted launchers) and the tank divisions had BM-24s (240mm 12-tube models mounted on artillery tractors).

Recent evidence indicates that the artillery in divisions, including that organic to the subordinate motorized rifle regiments, has been increased. These changes are discussed below and summarized in Table 1 on page 14.

Tank Divisions

[redacted] be-
tween November 1967 and December 1968 [redacted]
a reorganization of artillery in the tank divisions
in GSFG was under way. [redacted] ar-
tillery regiments of 2 tank divisions reflected a
division complement of 7 batteries (42 weapons.) This
42-weapon organization--which later proved to be an
interim one--was also indicated in low level, large
scale photography in October 1967 when 42 122mm howit-
zers were observed in the artillery regiment of the
12th Guards Tank Division at Schoenwalde.

By March 1968, the number of howitzers had increased
to 54 in the artillery regiments of the 12th Guards
Tank Division and also in the 10th Guards Tank Divi-
sion at Potsdam. These numbers were confirmed by low
level photography [redacted]
[redacted] of these units in convoys. By early
1969 [redacted] there
were 9 batteries (54 weapons) in at least 4 of the 10
tank divisions in GSFG, including the 10th and 12th
guards tank divisions.

[redacted]
[redacted] information on artillery in GSFG are seldom
available for units inside the USSR. [redacted]
[redacted] tank division
artillery regiments inside the USSR has been examined,
but only 5 regiments--4 near the Chinese border and
1 in the Carpathian Military District--were seen under
circumstances suggesting that nearly complete units
[redacted] Three units near the Chinese border
had 51, 52, and 55 weapons, approximating the 9-battery,
54-weapon organization in GSFG. One other border unit
had 46 weapons visible, suggesting at least 8 batteries.

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[redacted]

The unit in the Carpathian Military District had 42 weapons. The presence of 42 weapons is reminiscent of the 1967 interim increases in East Germany.

[redacted] the count may have included a battery of smaller caliber, nonstandard weapons used only for training purposes--a common Soviet practice intended to reduce costs and conserve ammunition for weapons in the operational inventory.

The evidence now available indicates that tank division artillery regiments have been increased from 36 to 54 howitzers in GSFG and on the Sino-Soviet border. The evidence on Soviet units in other areas, including the western USSR, is too limited to permit a judgment. Other organizational changes which were first noted in the GSFG have been eventually followed by similar changes throughout the Soviet forces, and all Soviet tank divisions will probably have their artillery increased in the next few years.

Motorized Rifle Divisions

Less evidence is available for artillery increases in motorized rifle divisions than for tank divisions. In July 1968 the artillery regiment of the 35th Motorized Rifle Division near Berlin was [redacted] formed into a march column preparing to depart for the Czechoslovak intervention. The regiment had 36 122mm howitzers and 18--rather than the previous 12--152mm howitzers.

Although this is the only such observation in East Germany, 2 motorized rifle division artillery regiments near the China border had 54 weapons [redacted] during 1969, suggesting that the increase in the artillery regiment of the 35th Motorized Rifle Division is representative of a trend in first line units.

Six other motorized rifle division artillery regiments have been observed [redacted]

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[REDACTED]

3 on the Chinese border and 3 in the western USSR, which appeared to have no more than the standard complement of 48 weapons. [REDACTED]

[REDACTED]

The evidence so far suggests that an increase in the artillery regiments of motorized rifle divisions is under way but probably not complete.

Increases in Regimental Artillery

[REDACTED]

[REDACTED] in East Germany in 1968 and 1969 [REDACTED] motorized rifle regiments in both tank and motorized rifle divisions had 18 120mm mortars instead of the previous 15, making a total of 18 mortars in the tank division and 54 in the motorized rifle division. Also, since June 1968 motorized rifle regiments in 2 tank divisions and 2 motorized rifle divisions in East Germany have [REDACTED] a battery of 6 122mm howitzers.* In May 1969, [REDACTED]

* *The concept of organic regimental artillery--other than mortars and direct fire weapons such as recoilless rifles--is strange to recent US field artillery doctrine and organization. US doctrine emphasizes centralized command and control of artillery and flexible gunnery techniques to ensure support to all infantry and armored units, and attaching artillery units to maneuver units is uncommon.*

The Soviets, on the other hand, have apparently found it necessary to assign organic field artillery to their motorized rifle regiments to ensure direct support.

This appears to be an expedient which makes the best of a bad bargain. The Soviets have fragmented control of the division's total artillery complement to achieve a relatively small fire support capability, a capability which would be available only intermittently since the battery would be out of action whenever the regiment moved out of supporting range, forcing the battery to displace.

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[REDACTED] such a battery was present in the motorized rifle regiment of a tank division in the Far East.

Other evidence has revealed the Soviet rationale for this change and clarified the procedure followed in making it. Recent writings on the use of howitzers as regimental artillery claim that they give the regiment its own means of attacking distant enemy targets such as tactical missile launch sites.

[REDACTED]
[REDACTED] motorized rifle regiment increased its 120mm mortar strength to 18 and acquired a howitzer battery only after the intervention, indicating that artillery reorganization in motorized rifle regiments had not begun in the key Carpathian Military District by May 1968 [REDACTED]

[REDACTED] the howitzers replaced a former mortar battery which was abolished, and the increase in mortars actually occurred in the subordinate rifle battalions.

The evidence to date indicates that the regimental artillery reorganization has been accomplished in such key areas as East Germany, Czechoslovakia, and the Sino-Soviet border, but may not be complete in other areas.

Multiple Rocket Launchers

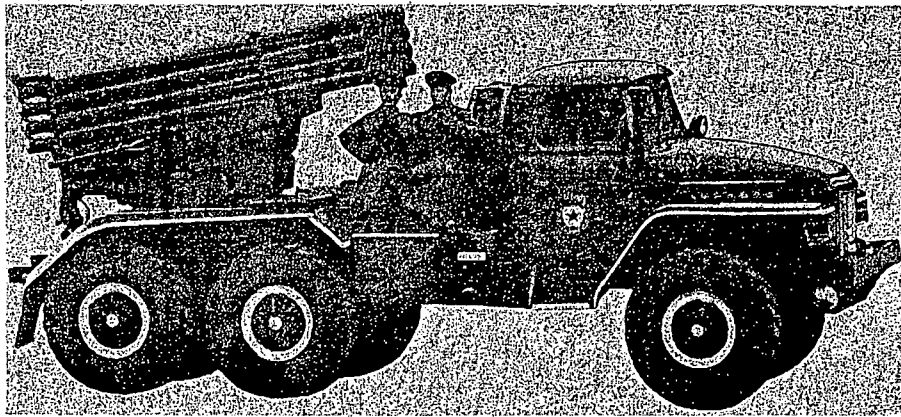
The Soviets have utilized large numbers of multiple rocket launchers in their artillery organization since their successful use of these weapons in defensive battles against the Germans in World War II. These weapons deliver large quantities of fire and could have considerable shock effect in a surprise volley against unprotected troops. They are inaccurate, however, and they deliver area fire rather than pinpoint fire. If used extensively, they also require substantial logistical support to keep them supplied with ammunition.

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Typical Soviet Multiple-Round Rocket Launchers

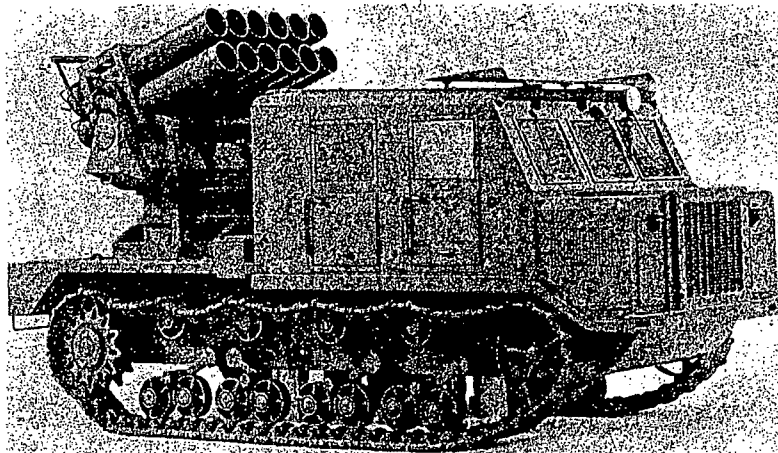
BM-21 122mm Rocket Launcher (M-1964)



Vehicle	Ural-375 truck
Weight (full load)	3.8 tons
Cruising range	250 miles
Rocket load	40
Rocket range	6,600-18,600 yds

Since 1964 the BM-21 has been replacing earlier models in Soviet tank and motorized rifle divisions.

BM-24 240mm Rocket Launcher



(Photograph of Model)

Vehicle	AT-S medium tracked artillery tractor
Weight (full load)	16 tons
Cruising range	240 miles
Rocket load	12
Rocket range	4,800-8,000 yds

Issued primarily to Soviet tank divisions. Now being replaced by the BM-21.

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Upon firing, they give away their position and become vulnerable to detection and counterfire.

Until quite recently, repeated observations in GSFG had established that each tank and motorized rifle division contained a battalion of 12 multiple rocket launchers. The motorized rifle divisions consistently had BM-14s and the tank division had BM-24s. (See photographs on page 12.)

The BM-21, a new 122mm 40-round launcher which is mounted on a 5-ton Ural-375 truck, has been observed in increasing numbers in East Germany recently. [REDACTED] in 1967 [REDACTED] the 10th Guards Tank Division at Potsdam had replaced all 12 BM-24s with BM-21s.

In addition, the total number of rocket launchers has increased. In August 1969 the 10th Guards Tank Division had 18 BM-21s when observed in convoy [REDACTED]

[REDACTED] confirms that the increase had occurred at least a year and a half earlier. [REDACTED]

[REDACTED] in July and August 1969 [REDACTED] varying combinations of BM-21s along with the old models in 2 other units, suggesting the units were in a transition period, changing over to the new model and the increased numbers. One had 12 BM-21s with 6 BM-14s, and the other had 6 BM-21s with 12 BM-14s. [REDACTED]

[REDACTED] motorized rifle divisions [REDACTED] confirm that the reorganization has occurred in both motorized rifle and tank divisions. [REDACTED]

[REDACTED] in August 1969, groups of 18 rocket launchers, which included some BM-21s, were observed with 2 newly established divisions on the Sino-Soviet border.

The evidence confirms that the Soviets are replacing at least some and probably all of their multiple rocket launchers presently deployed in East Germany with modern BM-21s. They are probably also increasing the number of launchers to 18 in both the motorized rifle divisions and tank divisions. There is evidence that similar changes are occurring inside the USSR on the Chinese border, but there is no evidence on units elsewhere.

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Table 1

Increases Under Way in Soviet Division
Artillery Complements Since 1967

	<u>Number of pieces</u>	
	<u>Pre-1967</u>	<u>Current</u>
Tank division		
122mm howitzers	36	60
120mm mortars	15	18
Multiple rocket launchers	12	18
Total	63	96
Motorized rifle division		
122mm howitzers	36	54
152mm howitzers	12	18
120mm mortars	45	54
Multiple rocket launchers	12	18
Total	105	144

Note: The figures in this table are estimates based primarily on GSFG divisions and Soviet divisions near the Chinese border. They represent an artillery organization which will probably become standard for all Soviet tank and motorized rifle divisions during the next 2 or 3 years.

The current figures for 122mm howitzers include-- in addition to those in the divisions' artillery regiments--6 in the motorized rifle regiment of the tank division and 6 in each of the 3 motorized rifle regiments of the motorized rifle division.

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Effect of Increases in Division Artillery

The artillery reorganization has resulted in an increase in the total number of artillery pieces, including heavy mortars and multiple rocket launchers, from 63 to 96 in the tank division and from 105 to 144 in the motorized rifle division. (See Table 1, page 14). The changeover to new model multiple rocket launchers has resulted in an additional increase in the divisions' firepower.

The artillery increase in divisions is probably complete in the Soviet forces outside the USSR and is currently under way, if not complete, in the Sino-Soviet border area. Soviet division artillery in other areas of the USSR will probably be similarly increased within the next 2 or 3 years.

Assuming that no significant increases in division artillery have occurred yet in Soviet forces in the central and western areas of the USSR, Soviet division artillery probably now totals some 17,000 artillery pieces. This total includes about 8,000 howitzers and about 9,000 heavy mortars and multiple rocket launchers. In 2 or 3 years, when the reorganization will probably be complete throughout the Soviet forces, the total number of division artillery pieces will have increased to some 20,000 through the addition of about 2,000 howitzers and 1,000 mortars and rocket launchers. (See Table 2, page 16).

Of the 17,000 artillery pieces probably now held by Soviet divisions, about 5,800--3,400 howitzers and 2,400 mortars and rocket launchers--are in Soviet forces intended to be employed against the NATO Central Region. These will increase to a total of 7,500--4,200 howitzers and 3,300 mortars and rocket launchers--when the reorganization of division artillery is complete.

Soviet divisions located near the Chinese border probably have about 3,400 artillery pieces. These include 1,800 howitzers and 1,600 mortars and rocket launchers.

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Table 2

Estimated Soviet Artillery Strength

	Number of pieces	
	Present 19,200-19,500	Projected 22,200-22,500
<u>Total strength</u>		
Division artillery	17,000	20,000
Howitzers	8,000	10,000
Heavy mortars and rocket launchers	9,000	10,000
Front and army artillery	2,200-2,500	2,200-2,500
<u>Strength in key areas</u>		
Facing NATO Central Region	6,700	8,400
Division artillery	5,800	7,500
Howitzers	3,400	4,200
Heavy mortars and rocket launchers	2,400	3,300
Front and army artillery	900	900
Along Sino-Soviet border	4,000	4,000
Division artillery	3,400	3,400
Howitzers	1,800	1,800
Heavy mortars and rocket launchers	1,600	1,600
Front and army artillery	600	600

Note: This table shows estimated Soviet artillery strength--guns, howitzers, heavy mortars, and multiple rocket launchers--in tank and motorized rifle divisions and in front and army artillery. Present figures assume that artillery increases have taken place in Soviet divisions in Eastern Europe and along the Sino-Soviet border, and the projected figures assume that the reorganization and increases now under way are carried out in all Soviet divisions during the next 2 or 3 years.

There is no evidence that the size or number of units in front and army artillery is being increased and projected figures are the same as present estimates.

Figures for forces facing the NATO Central Region assume that the divisions in the western USSR have not yet had their artillery increased to the levels of the Soviet forces in East Germany. Increases are believed to be complete or nearly so in forces along the Sino-Soviet border.

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Army and Front Artillery

In addition to division and regimental artillery, the Soviets maintain a number of separate artillery units which are part of the combat support elements of field armies and fronts. These units include battalions of 18 weapons, brigades of 36 and 54 weapons, and divisions of as many as 162 weapons.

According to Soviet doctrine, artillery divisions are to be assigned to fronts. Brigades and battalions are usually assigned to armies but may also be used as front artillery. The Soviets have a number of separate corps which are similar in function to armies but are smaller and have less support. No separate artillery units have been identified in corps.

[redacted]

None of this evidence indicates any recent increases in Soviet front or army artillery paralleling the increases in division artillery.

Group of Soviet Forces in Germany

At least 3 of the 5 Soviet field armies now in East Germany probably have artillery brigades assigned to them. The existence of artillery brigades--each containing 24 130mm guns and 12 152mm howitzers--in the 3rd Shock Army and 20th Army was confirmed [redacted]

[redacted] In addition, 12 130mm guns and 12 weapons which were either 122mm guns or 152mm gun-howitzers were identified in April 1968 in [redacted] a Soviet installation at Karl Marx Stadt in the 1st Guards Tank Army area, indicating that the 1st Guards Tank Army has an artillery brigade, probably also of 36 weapons. In October 1965

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Table 3

Distribution of Soviet Front and Army Artillery
Compared With Forces Supported

<u>Location</u>	<u>Armies</u>	<u>Line divisions probably intended for early commitment</u>	<u>Guns and howitzers</u>
Group of Soviet Forces in Germany*	5	20	216-252
Baltic MD	1	4	36
Belorussian MD*	3	10	180
Carpathian MD*	3	10	450-504
Kiev MD	2	10	162
Leningrad MD*	1	7	180
Moscow MD	0	4	36
Odessa MD	1	4	90-108
Transcaucasus MD*	2	10	108-162
Turkestan MD*	0	8	108-162
Transbaykal MD and Mongolia*	2	11	216-270
Far East MD*	1	13	414
Total front and army artillery			2,196-2,466

Note: No front or army artillery has been identified in Soviet forces in Czechoslovakia, Hungary, or Poland, or in the North Caucasus, Siberian, Ural, or Volga military districts.

Asterisks in the first column designate potential wartime fronts.

Where a range is given in the column for guns and howitzers, the higher figure includes weapons in "possible" units (see the fourth column of the Annex), as opposed to units firmly identified.

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[redacted] 30 130mm guns in a Soviet training area in the 8th Guards Army area, suggesting that a brigade exists in that army as well. There is no recent evidence of a brigade in the 2nd Guards Army.

One artillery division is located in East Germany.

[redacted] it is directly subordinate to Headquarters, GSFG. [redacted] the unit confirmed that it has 2 brigades, 1 with 54 130mm guns and 1 with 54 152mm howitzers. (See Table 3, page 18.) A third brigade [redacted]

[redacted] was probably eliminated in the 1958-61 reductions.

USSR

Satellite photography of separate artillery units inside the USSR is the only recent and reliable evidence of their existence and status. The quantity and quality of photographic coverage of Soviet ground forces in the USSR is such that probably no more than a few separate artillery units have not been detected.

Front and army artillery units with a total of some 2,000 to 2,200 guns and howitzers have been identified inside the USSR. (A detailed listing is at Annex.) The geographic distribution of front and army artillery units (shown in Table 3) is roughly consistent with the distribution of armies and potential fronts when account is taken of the relative importance of the missions of the potential fronts and the likely opposing forces.

There are exceptions. The GSFG and the Belorussian Military District, each of which is earmarked to form a front against the NATO Central Region, probably have only about 200 weapons each although the Carpathian Military District, which has a similar mission, has about 500. The armies in the Far East and Transbaykal military districts also have artillery support at well

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[redacted]

above the levels found in armies in the GSFG and Belorussia. (A map of Soviet military districts is included with the Annex.)

There is no obvious explanation for these disparities. They may in part reflect gaps in information.

[redacted]

A more likely explanation is that some of the separate artillery found in the Carpathian Military District is earmarked for use by forces other than the potential Carpathian Front--part of it may be earmarked to reinforce the GSFG.

[redacted]

[redacted] the strength of Soviet front and army artillery is probably between 2,200 to 2,500 weapons, most of which are 122mm guns, 130mm guns, and 152mm gun-howitzers. About 900 are part of forces which are probably intended primarily for use against the NATO Central Region--the GSFG and the Baltic, Belorussian, and Carpathian military districts--and about 600 support forces on the Sino-Soviet border. There is no reliable recent evidence of front or army artillery with Soviet forces in Czechoslovakia, Hungary, or Poland, or in the North Caucasus, Siberian, Ural, or Volga military districts.

Soviet Artillery Doctrine, Tactics, and Technique

Soviet artillery doctrine, tactics, and gunnery technique as they are revealed in official and unofficial Soviet military writings and in training and exercises appear to be the greatest weakness of Soviet artillery.

Soviet gunnery technique is probably roughly equal to US World War II gunnery. Soviet artillery tends to rely on rigid prior planning and the physical maneuver of firing units to ensure fire support to maneuver units. Firing of barrages--a primitive tactic last used by US artillery in World War I--is still a

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major tactic, according to recent Soviet doctrine. The measured rigidity of the barrage excessively restricts the movement of the troops being supported and is wasteful of ammunition.

Overall, Soviet gunnery is probably adequate for the accurate massing of preparatory fires in a static situation--given considerable time for planning and supply--but it is doubtful that Soviet artillery fire direction, observation, and communication could approach the rapid concentration of fire from many weapons on targets of opportunity which is taken for granted in US artillery.

[redacted]

Comparison With NATO Artillery Capabilities

Assuming that no significant artillery increases have yet taken place in divisions in the western USSR or in any East European forces, the Warsaw Pact forces probably intended for early use against the NATO Central Region--in East Germany, Czechoslovakia, Poland,

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and the Baltic, Belorussian, and Carpathian military districts--would have a total of about 9,400 artillery weapons, including 5,800 guns and howitzers and 3,600 heavy mortars and multiple rocket launchers. NATO's Central Region forces would have about 3,600 artillery weapons including 2,700 guns and howitzers and 900 heavy mortars.

NATO--and particularly US--artillery is markedly superior to that of the Soviet Union and its Warsaw Pact allies in caliber, mobility, and armor protection, and in technical and tactical performance. The majority of Soviet cannon artillery is 122mm howitzers--for example, three quarters of that in GSFG--and the rest is 152mm howitzers and 122mm or 130mm guns. In NATO forces, 70 percent of the cannon artillery is of 155mm or larger caliber, including large numbers of heavy 175mm and 8-inch weapons. Although the Soviets developed a modern heavy artillery piece--a 203mm howitzer--in the mid-Fifties, this weapon was apparently unsatisfactory since no heavy artillery units were formed.

A large proportion of NATO tube artillery is self-propelled and much of this is armored. By contrast, all of the Warsaw Pact's tube artillery is towed. The restricted mobility and lack of armor protection of Soviet artillery would hamper its capability to provide close, continuous fire support to line units in fast-moving situations.

The evidence available indicates that planned Soviet supply rates for artillery are only a little more than one-third of NATO rates. The Soviets' logistical transport capability is keyed to these low supply rates, so that it would be virtually impossible for the Soviets to increase them substantially without a major increase in motor transport. Considering this evidence--the heavier caliber of NATO artillery, and NATO's superiority in gunnery techniques and tactics--it appears that NATO artillery is likely to deliver a greater overall volume of accurate artillery fire than Warsaw Pact artillery despite its inferiority in numbers.

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Conclusions

Evidence accumulated during the past two years indicates that the Soviets have increased the number of field artillery pieces in tank and motorized rifle divisions in the Group of Soviet Forces in Germany by nearly 50 percent. Similar increases have occurred in at least some of the Soviet divisions near the Chinese borders, and in the next 2 or 3 years the Soviets will probably extend the artillery reorganization to all their divisions--combat strength, reduced strength, low strength, and, eventually, cadre divisions.

The changes in Soviet doctrine since Khrushchev--which now recognizes the possibility of sustained non-nuclear war with NATO--were probably a major factor in the decision in about 1966 to increase the artillery.

With the recent increases, the Soviets now have some 17,000 artillery pieces in tank and motorized rifle divisions, 8,000 of which are 122mm and 152mm howitzers. No increase has been detected in front and army artillery units, which have about 2,200 to 2,500 medium artillery pieces. When all divisions have the new artillery complement, the total number of artillery pieces in divisions and in front and army combat support will be about 22,000, including about 12,000 light and medium guns and howitzers.

Multiple rocket launchers make up a large and increasing element of Soviet artillery firepower. The characteristics of these weapons make them best suited for defense or for initial preparatory fires on breakthrough zones but limit their effectiveness in fluid situations.

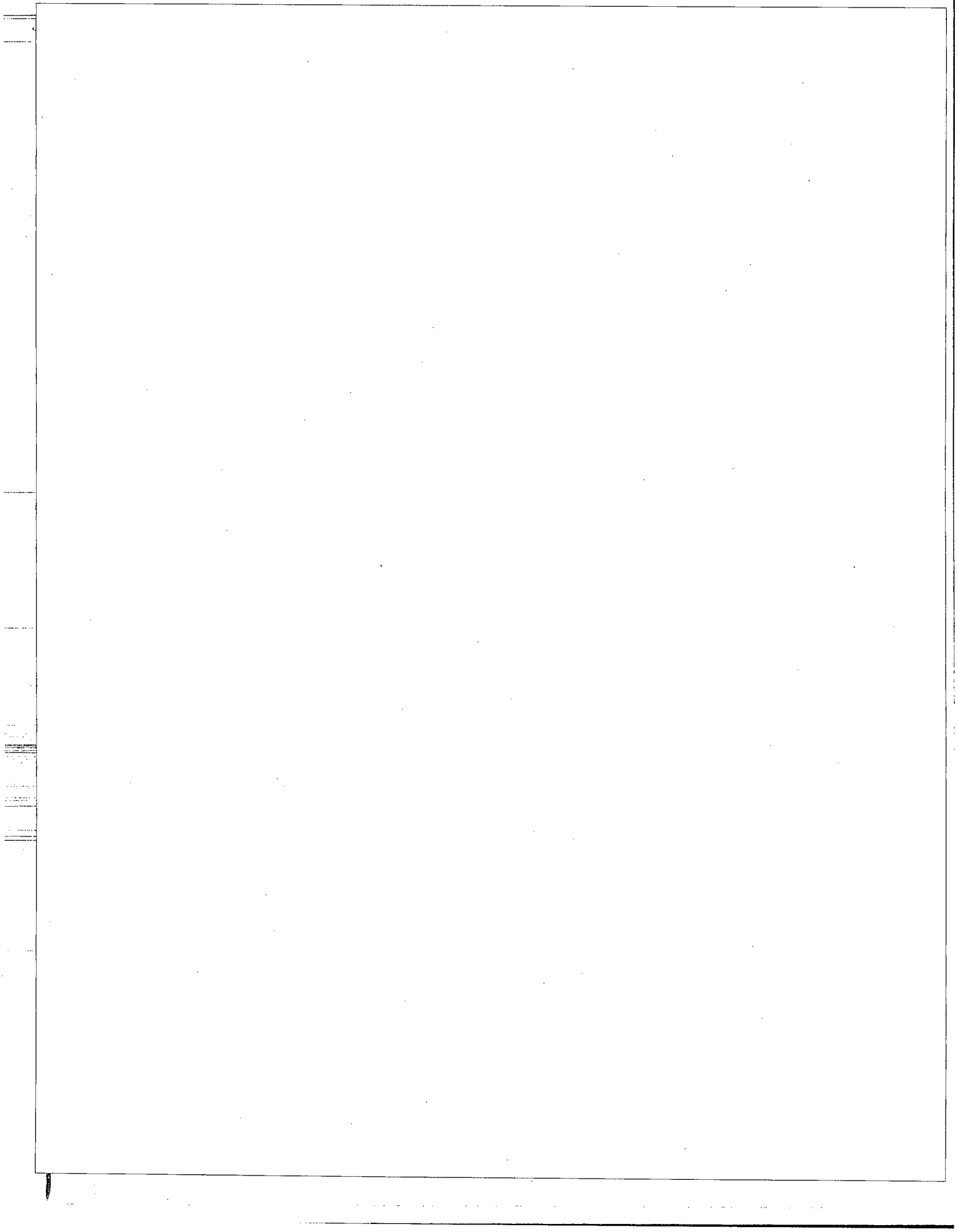
In their forces intended for use against NATO's Central Region, the Soviets and their Warsaw Pact allies probably have about 9,400 artillery weapons, including 5,800 guns and howitzers and 3,600 heavy mortars and multiple rocket launchers. In numbers, the Warsaw Pact would have about 2.5 times as many artillery weapons as NATO, including roughly twice as many guns and howitzers.

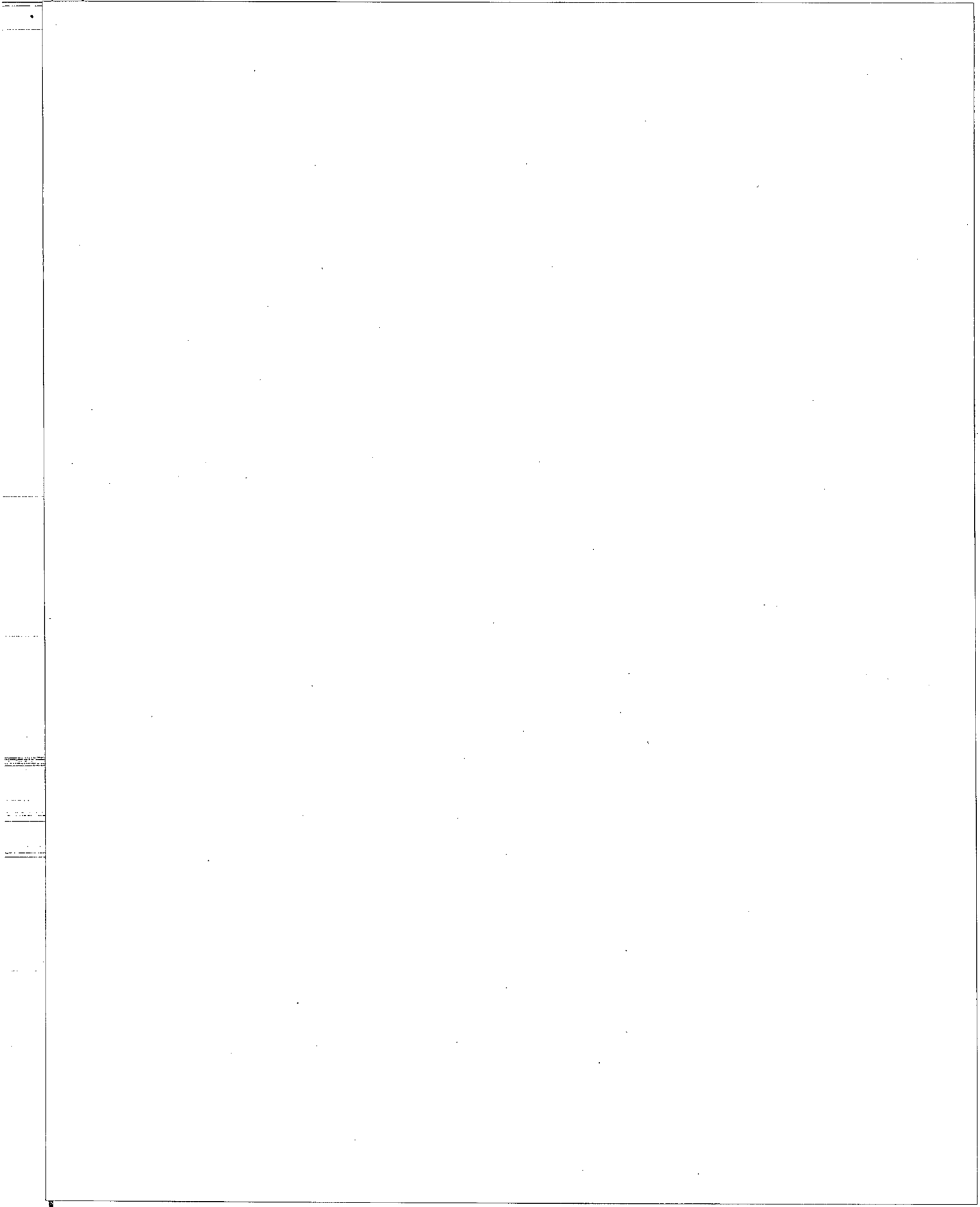
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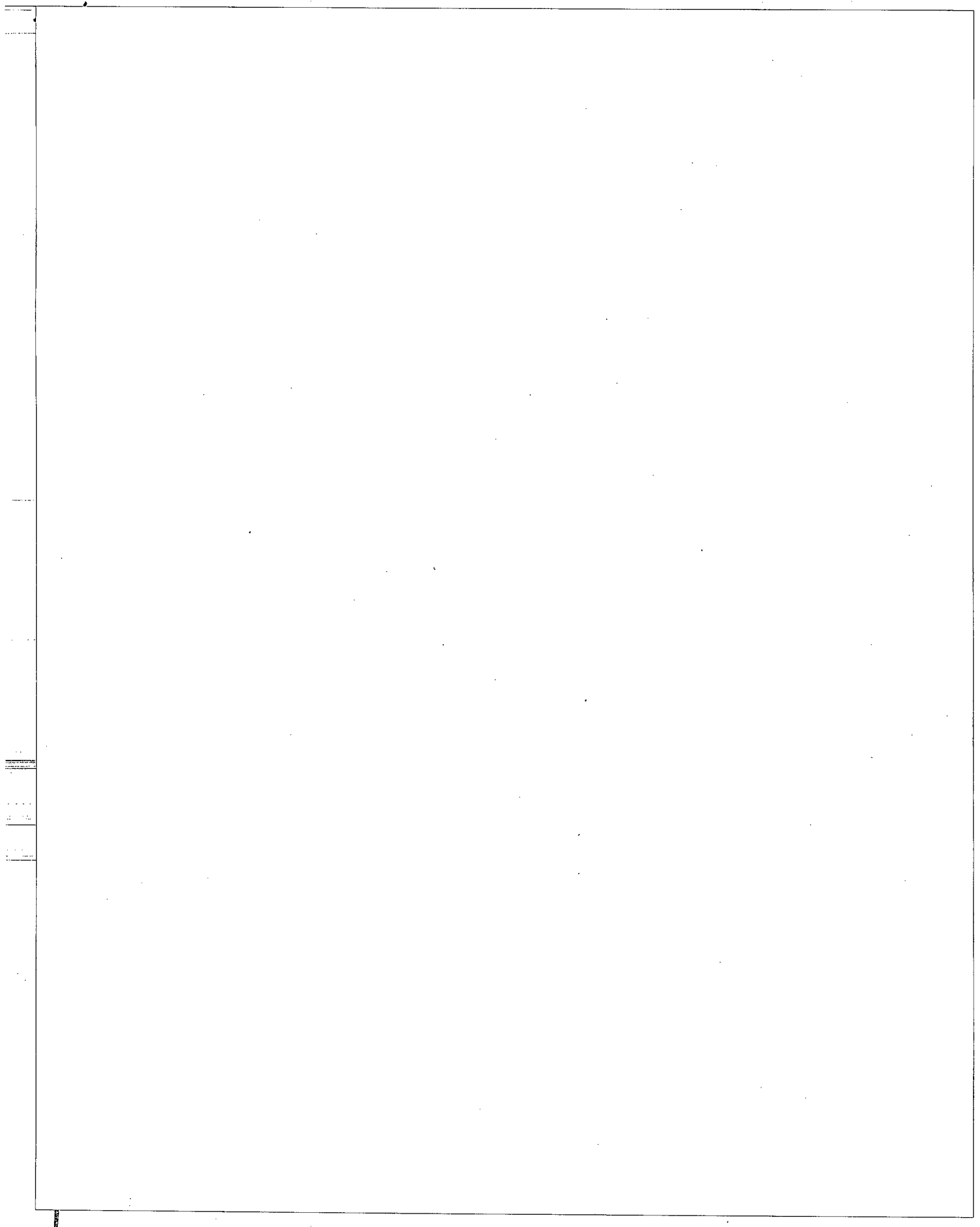
4 The Warsaw Pact's numerical superiority would probably be largely offset by the superior quality and firepower of NATO artillery. Soviet guns are of relatively light calibers when compared with NATO artillery, none of the cannon artillery is self-propelled or armored, and Soviet artillery is not suited for continuous support of the fast moving armored forces the Soviets envision. The effectiveness of Soviet artillery would also be limited by rigid doctrine and outdated tactics and techniques which would prevent taking full advantage of field artillery's inherent flexibility and capacity for rapid maneuver of massed firepower.

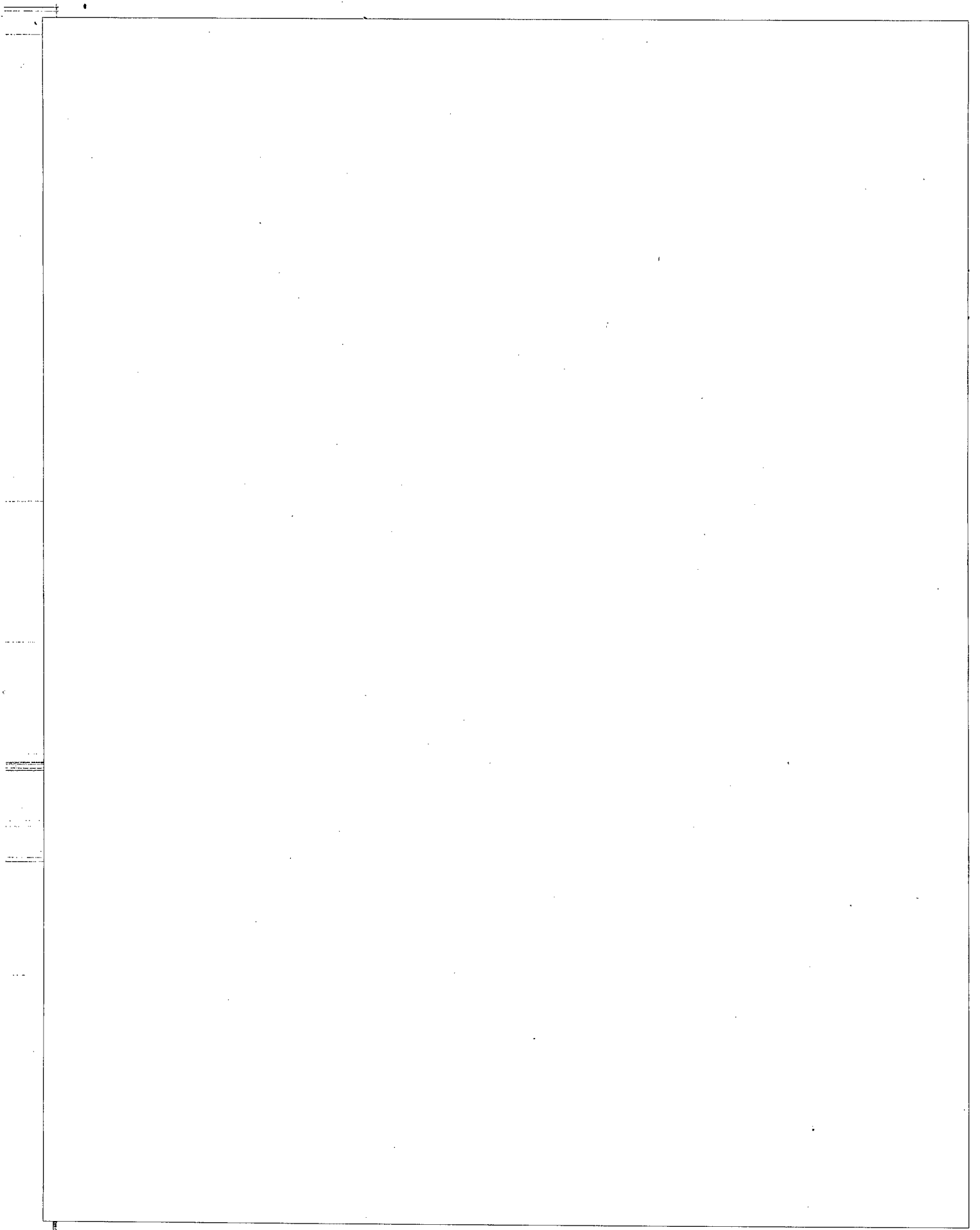
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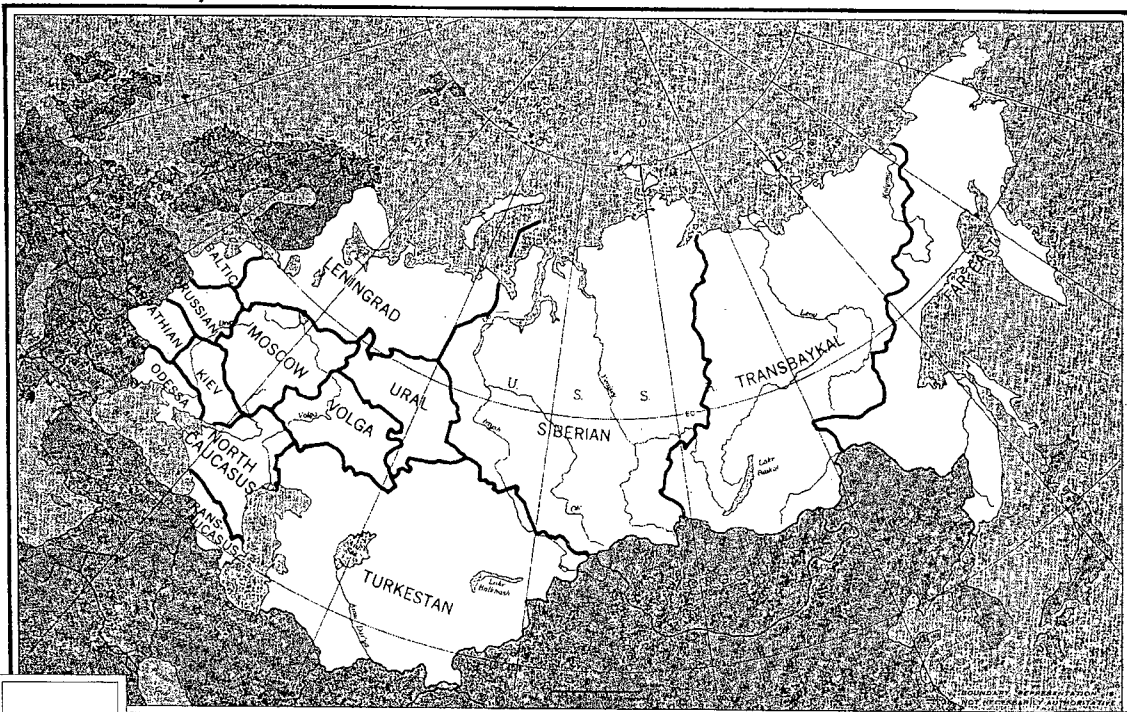








Soviet Military Districts



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