

Soviet and German Advisors Put Doctrine to the Test:

Tanks in the Siege of Madrid

by Dr. John Daley

Initial Operations

Despite the merits of Mikhail N. Tukhachevsky's doctrinal guidance, as embodied in the Soviet Temporary Field Service Regulations *P[olevoi]U[stav]-36*, and the technological lead held by the Soviets in tank design, the Krivoshein Detachment's deployment to Republican Spain in the autumn of 1936 was to prove premature: Arriving at Cartagena on 16 October, Lieutenant Colonel Semyon M. Krivoshein and his badly understrength advisory team had only ten days to produce an operational tank unit. Unlike the Nationalists, who received instruction from German Army volunteers — Wilhelm Ritter von Thoma's *Imker Drohne* group — the Republic's poorly trained Popular Militia was on the strategic defensive around Madrid and giving ground daily. On 26 October, the senior Soviet advisor ordered Krivoshein to send at least some of his tanks forward.¹ Because less than 40 Spanish trainees were ready, only 15 tanks went; Krivoshein would serve as their liaison with the supported Republican infantry brigade while a subordinate, Captain Paul Arman, commanded. The arrival of Arman's company in the Madrid sector two days later provided a badly needed boost to Republican morale. The Republic's Premier announced it over the radio:

*The time has come to deliver a death blow... Our power of taking the offensive is growing. We have at our disposal a formidable mechanized armament. We have tanks and powerful airplanes. Listen, comrades! At dawn, our artillery and armored trains will open fire. Immediately, our aircraft will attack. Tanks will advance on the enemy at his most vulnerable point.*²

Fortunately for the tank crews, no more specific warning followed. In the estimation of General Jose Miaja, who commanded the Republic's Central Front, the most vulnerable point was the village of Torrejon de Velasco, which lay 16 miles south of the capital astride the Toledo-Madrid highway — and rebel general Jose Enrique Varela's axis of advance. Unfortunately, because of poor communications between sector headquarters and the assault element's assembly area, effective coordination was impossible. An artillery preparation commencing at 0630 was to be followed immediately by the advance of Captain Arman's tanks. Infantrymen of Colonel Enrique Lister's brigade were to follow 200 yards behind the tanks, and plentiful air support was expected. Lister's Chief of Staff, Captain Ramon Sender, later recalled, "Everything seemed to us easy and brilliant, and the thirst for victory infected all of us."³

Then, at zero hour, all remained silent. Fifteen minutes later the barrage began, but by then it was too late to worry about what had gone wrong. The tanks were passing by the brigade command post a few at a time en route to the fighting, and Sender could only "[deduce] from the noises in the field how the operation was proceeding." During the next few hours, his telephone conversations with an even more confused sector commander provided a few clues, all of them ominous. Although higher headquarters was expecting an attack on Torrejon, reports from the front indicated that Lister's brigade and its tanks were now moving on Sesena, a full eight miles to the southeast of the intended objective, in accordance with an earlier, now superseded, plan. If the reports were true, the air and artillery support, so sorely lacking in previous Republican operations, would likely materialize in the wrong place.⁴



SECOND OF TWO PARTS

Meanwhile, Arman and his T-26s crossed the line of departure, leading the infantry southwest toward Sesena. As in most World War I tank-infantry actions, the tanks left the walking riflemen far behind well before either had reached the objective. Arman, realizing that his company had escaped enemy detection, continued to advance, leading his company down a narrow winding street and into the village square. There, a company of Nationalist infantry was assembling and, fortunately for the tank crewmen, it was equally surprised.

Mistaking the Soviets for Italian allies, the rebels held their fire and the correct assessment came too late. Hatches slammed, machine guns stuttered, and high velocity 45mm cannons fired point blank into the mass of stunned victims. Many of those not shot were crushed while attempting to escape.⁵

So began the war's first tank battle, a tactical and operational miscue in which the attackers were initially spared by equally glaring errors on the other side. Arman pressed his advantage. Moving westward, the advancing tanks shot up a Nationalist convoy and then charged into the village of Esquivias, where a cavalry screen of the Moorish Legion finally intercepted them. As armor and horse-flesh squared off in a network of dusty village lanes, Lister's infantry was still fighting its way toward Sesena, several miles to the rear. One company attacked the wrong objective, sustaining additional casualties from friendly artillery fire in the process. Even those headed in the proper direction were too far behind Arman's tanks to gain any advantage, and Krivoshein's attempts to re-form them were futile.⁶

By late morning, the unsupported armored column had become scattered as

well. Two tanks continued the advance to Torrejon, but these were easily destroyed by a field expedient as effective as it was simple — wine bottles filled with gasoline. Also lacking infantry support, the other T-26s turned back at Esquivias but returned via the same road through Sesena, now reoccupied by Nationalist infantryman. From the windows and rooftops came a flurry of hand grenades as the single column passed by. Even the Russian “tortoises” were fallible.

The tactical shortcomings of the abortive Sesena-Esquivias-Torrejon operation were recognized by few save those who had made the attack. For the embattled population of Madrid, even a temporary success was noteworthy, and Republican newspapers circulated inflated accounts on 30 October — the day Canaris delivered his ultimatum to Franco.⁷ Krivoshein’s assessment of the tanks’ debut was more balanced:

The main failure was in the area of tactical coordination between tanks and infantry. Neither the soldiers nor commanders of the Republican army mastered the use of tanks, staying with them and developing their success. The tankers, for their part, forgot the infantry because they had been overcome by their desire to smash the enemy; the tank units often failed to orient properly on the terrain.⁸

Unfortunately, identifying the problems was easier than solving them. Prior to the next attempt to penetrate the Sesena-Torrejon line, scheduled for 3 November, participating infantry battalion commanders received a briefing on tank-infantry coordination at Krivoshein’s “request.” They too were aware of the lack of cooperation which had plagued the 29 October attack and assured him that there would be no recurrence. But concerns remained: Infantry commanders had no proof that the T-26s would remain within supporting distance of their troops once the shooting started, and the tankers worried that they themselves would be “sacrificed too freely” in the event of stiff resistance.⁹ Krivoshein now commanded four tank companies and directed all to “act only in strict cooperation with the infantry.” That meant staying no more than 300 to 500 meters ahead of it, no matter how light the resistance appeared at any given moment. In this way, the tanks would be able to double back on enemy machine guns that had escaped detection. The tanks were also to stay out of villages, where they had recently proven most vulnerable to grenades and other makeshift antitank measures. In-

stead, they would surround built-up areas and reconnoiter by fire from ranges of 300 to 500 meters while the infantry advanced.¹⁰

Despite Krivoshein’s efforts, strict control measures proved much easier to issue in the briefing tent than to obey on the battlefield. As Captain Fauri’s 1st Tank Company led a battalion of Republican infantry toward Torrejon on the third, Nationalist field artillery opened fire. The first few rounds were short, but as the fire grew more accurate, infantrymen scattered and tank drivers accelerated, quickly exceeding the 500 meter maximum interval. Without friendly counterbattery fire or supporting infantry to storm the enemy’s forward positions, Fauri’s tanks could advance no farther. Nor could he communicate with them, as only command tanks carried radios.¹¹

That afternoon, the Republican infantry finally caught up and the objective fell, but subsequent preparations for the inevitable counterattack proved inadequate. Neither Fauri nor the infantry battalion to which he was attached had placed sentinels and, under cover of an overcast night, a *tabora* of Moorish infantry approached. Undetected until the first of their hand grenades exploded among Torrejon’s defenders, the Moors precipitated a sudden and disorganized retreat. The commander of the accompanying infantry battalion ordered a withdrawal without notifying Fauri. Meanwhile, Fauri’s 3rd Section was still guarding the village’s western approaches, isolated from the remainder of the company by a mile of fog-shrouded enemy territory. Early on the morning of 4 November, when Fauri elected to follow the infantry in retreat, his lost section was left to face another onslaught of Moorish Legion grenadiers. Only one vehicle escaped.

With the failure of the second Sesena-Torrejon operation, other Republican units on Madrid’s southern outskirts retreated northward as well. During 5 and 6 November, forward elements of Krivoshein’s group underwent badly needed maintenance, only to be thrust back into the line wherever the hastily trained *Milicia Popular* was faring most poorly. However sound theoretically, the Soviet doctrine of mass and offensive was of little use to a tiny cadre of mechanization specialists struggling with incompetent supporting arms against an unbreakable siege.

Fortunately for the Republicans, their disadvantages were at least partially offset by geography. Not only did Miaja’s command enjoy interior lines of communication but, as it collapsed inward to-

ward the Spanish capital, its frontage shrank. While the gaps between front-line strongpoints grew smaller, the militiamen gained badly needed experience and, when fighting from improved positions, they suffered fewer casualties. By 7 November, Krivoshein noticed a change: whenever tanks were present, morale improved. Moreover, even when counterattacks failed to meet the High Command’s expectations, tank-infantry coordination at the tactical level was better.¹² Meanwhile, Miaja’s Central Front force was growing daily with the piecemeal arrival of units from the east and, by mid-month, it was no longer delaying but defending.

During the remainder of November, Krivoshein’s tank companies continued to shore up Madrid’s defenses. Each usually supported an infantry battalion of the all-Communist 5th Regiment in operations fought on poor tank terrain for minor tactical gains. Although this was far from the deep battle that Triandafillov and Tukhachevsky had envisioned, the T-26s were nevertheless serving in the role assigned them by Soviet field regulations — the support of non-mechanized infantry. Furthermore, despite numerous postwar commentaries to the contrary, important lessons were learned. On the 13th, the tanks attempted unsuccessfully to spearhead an assault against a Nationalist-held monastery atop Cerro de Los Angeles, eight miles south of Madrid. Confined to a single road by steep hillsides, the T-26s lost their freedom of maneuver and two were easily destroyed by 37mm antitank guns emplaced near the summit. Those crews lucky enough to close with the objective found that their 45mm guns were not powerful enough to penetrate the monastery’s thick stone walls, and a subsequent barrage by supporting artillery failed also. There was no success to exploit, and the tankers remained subordinate to infantry commanders, engaging enemy machine guns whenever Republican storming parties became pinned down. After several attempts, each no more successful than the last, the attackers gave up.¹³

For tanks supporting infantry assaults by direct fire, a more powerful main armament was needed, yet many Republican soldiers were still living at day’s end because the 45mm guns had been more than a match for machine gun emplacements in front of the objective. The wear and tear of combat on the equipment was also problematic. By 17 November, less than three weeks after arriving at the front, Arman’s company had lost half of its original tanks to breakdowns and enemy action. Krivoshein not only ordered its

withdrawal for a complete refitting, but arranged for a new maintenance facility to be established over three hundred kilometers closer to the front.¹⁴

The two replacement companies, manned primarily by Spaniards, also found themselves in less than ideal tactical circumstances of General Miaja's making. From the 18th to the 22nd, they fought in the narrow streets of University City, on Madrid's northwestern outskirts. Serving again in the short range infantry support role, the T-26s proved unusually easy targets for 37mm antitank and direct fire field artillery. In an attempt to reduce his losses, Krivoshein prepared — without authorization — to reposition the tanks on more open ground.¹⁵ Meanwhile, however, Miaja planned a limited counteroffensive to straighten the Republican lines. The tanks would thus fight on unfavorable terrain yet again. The new setting was Casa de Campo, a hilly heavily wooded park on Madrid's western perimeter. When the operation commenced on 1 December, Krivoshein was determined that this time his tanks would not get too far ahead of the supported infantry brigade. At zero hour, he held all 32 in reserve, and did not plan to release them until the first objective had fallen. But when the infantry failed, Krivoshein committed them anyway. His plan had seemed sound before zero hour, but desperate requests for support could not be ignored once that plan had failed. As at Cerro de Los Angeles and University City, the T-26s were road-bound and their gains, temporary.¹⁶ On the 6th, when General Pavlov took direct control of Republican tank operations, the character of those operations had already been decided; despite the theoretical promise of deep battle, the NPP, or short range infantry support mission, was now far more urgent.

Early German combat experiences in Spain were even more frustrating. Although the Nationalists held the initiative in late 1936, their Mark Is, often under Spanish command, never exploited it. Nor would German leadership have made a strategically significant difference with only four 15-tank companies in service. Like the enemy's T-26s, the *panzers* were employed in close conjunction with non-mechanized infantry formations whose training in combined arms operations had been brief.

Franco's loss of the strategic initiative was not due entirely to Miaja's effective leadership; Canaris's 30 October ultimatum had indeed been warranted. Not only was the Nationalist advance on Madrid uncoordinated, but the Generalissimo had

ignored indications of Republican intent throughout the summer. German consuls stationed in Republican-controlled Mediterranean ports had informed the Nationalists that their enemies were unloading tanks and airplanes under cover of darkness.¹⁷ Even when Republican authorities had failed utterly to conceal their plans, no advantage was taken; the premier's radio broadcast on the 28th was only the most recent in a string of missed opportunities. Franco's subsequent willingness to meet German demands was thus doubly important in preventing another near disaster like Sesena.

Luckily for the Republicans, Canaris's admonitions to Franco had not yielded complete results by mid-November. When the *panzers* fell upon Madrid's southern defenses at Getafe on the fourth, one observer noted that they appeared to fire without aiming. Although their objective — Madrid's principal airfield — was eventually taken, the tanks continued to fare poorly. On the 7th — the day that Krivoshein would later identify as the turning point for Miaja's defenders — Republican militia *dinamiteros* destroyed the battalion commander's tank. Searching the wreckage, the tank killers found a set of orders outlining the rebels' upcoming push into the Casa de Campo. This soon ended up on Miaja's desk and, unlike Franco, Miaja heeded the warning. By the following morning, the threatened sector had been reinforced and, despite concentrated artillery support, successive waves of Moroccan and Spanish infantry were handily neutralized by well-placed machine guns.¹⁸

Frustrated by defenses which he had expected to crack by 8 November, General Varela agreed with Franco that the main effort should be shifted to Madrid's supposedly more vulnerable western and northern approaches. At dawn on 3 January, the rebels attacked from the southwest with four brigades totaling 17,000 infantry and cavalry. Driving north, the force severed a Republican supply line to Madrid the following day but, on Varela's right, the advance was held up at Pozuelo de Alarcon, only seven miles from the capital. There, attacking brigades of Colonels Francisco Garcia Escamez and Eduardo Saenz de Burruaga encountered the first Republican reinforcements to arrive from Madrid and a sharp meeting engagement ensued.

Bypassed and cut off, Pozuelo's defenders went to ground and held out. On the 5th, Varela again struck with his right wing. This time, in keeping with Canaris' 30 October ultimatum, Thoma — not a

Spanish trainee — commanded the tanks.¹⁹

The operation began as planned. Once tactical air superiority had been gained, the first echelon of Mark Is advanced under the supporting fire of self-propelled artillery followed by infantry formed in line of company columns, a second wave of armored vehicles, and more infantry. But the defenders had cover; the hills of this sector were dotted with numerous summer villas and their walled gardens.

Furthermore, Miaja had seven miles of this terrain between Pozuelo and Madrid, and was willing to trade space for time. The *Commune de Paris* battalion delayed grudgingly from one stone wall to the next, and the situation was further complicated by the surprise appearance of a squadron of Soviet BA-10 armored cars. Equipped with short recoil 37mm cannons, the 5.2-ton vehicles could easily destroy Mark Is at ranges of under 500 meters and, in the course of the fighting around Pozuelo, Thoma lost over a dozen tanks to them. However, the armored cars ultimately proved incapable of spearheading an effective counterattack and, when Pavlov's T-26s led the XII International Brigade forward on 11 January, they, too, were unable to gain much ground. By the 15th, when both sides again dug in, their positions had changed little.²⁰

Far more important from Thoma's perspective were the results of tank-versus-tank and armored car-versus-tank engagements around Pozuelo, both of which favored Soviet vehicles. Nor were these confrontations anomalous. When the Nationalists again shifted their main effort to the south of Madrid in early February, the Mark Is met a similar fate. Operating against initially disorganized defenses in the Jarama sector, they proved effective enough in the close support of infantry, but only until Pavlov's T-26s arrived.

The German response to these setbacks exposes the fallacy inherent in Miksche's "Spanish Laboratory" thesis: Thoma directed *Imker Drohne* personnel to avoid engagements with Soviet tanks whenever possible, and increasingly limited them to instructional duties.²¹ Spaniards commanded the tanks in battle as they had before Thoma's arrival and not until the war's closing months would those tanks participate in a strategically decisive offensive. By that time, Republican foreign assistance — and hope — had fallen to fatal levels. Tank-versus-tank engagements, where they did occur, continued to favor the Soviet tanks but, of seven hun-

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dred sent to Spain, few remained operational in 1939.

Lessons Learned but Forgotten

Like their better known successors, Arman and Krivoshein survived the Spring 1937 Purge to command tank formations in the next war. Arman died in August, 1943, while commanding a tank division on the Volkhov Front and was posthumously designated a Hero of the Soviet Union.²² Krivoshein eventually rose to the rank of lieutenant general, a noteworthy accomplishment when one considers his close associations with both Tukhachevsky and the formulation of *PU-36*. In September, 1939, when he represented the Soviet Union in negotiations over the partition and occupation of Poland, his German counterpart was none other than Heinz Guderian. Thoma went on to succeed Erwin Rommel at the head of the *Afrika Korps* and was captured at El Alamein.

During the Spanish Civil War, none of these men managed to reconcile completely the theory of armored warfare with its practice. Moreover, when Pavlov succeeded Krivoshein in December, 1936, that fundamental disparity had already been amply demonstrated. Tukhachevsky had argued that no modern army could destroy a modern enemy force without massive armored concentrations, but far too few of his 7,000 tanks were on hand in Spain to verify that hypothesis. Less fixated on sheer numbers than was Tukhachevsky, Guderian nevertheless emphasized the importance of concentration, a requirement that Thoma’s little force could never have met with the number of tanks available.

Miksche’s argument to the contrary notwithstanding, tank operations in the Spanish Civil War and World War II were qualitatively as well as quantitatively different, and the differences affected both sides adversely. The turnover rate among cadre members mattered as well. Shortly after Pavlov assumed command in December, 1936, a number of his combat veterans, including Krivoshein and Arman, were sent home rather than retained long enough to impart their hard-earned knowledge to inexperienced replacements. As a consequence, newly arriving battalion commanders, including

Konev, Rokossovsky, and Malinovsky, repeated the tactical errors of October. Meanwhile, Thoma remained with the *Imker Drohne* group, but served increasingly as a chief instructor and advisor.

Despite the personnel turnover rate and small numbers, however, the tank’s great potential as a close support weapon for non-mechanized infantry assaults became apparent, and the yet unfulfilled promise of independent operations did not make this less so. The Soviet experience also indicates that tanks, although purpose-built offensive weapons, were often a front commander’s most effective stop-gap, particularly in the absence of reliable artillery and air support; they were mobile enough to appear at any threatened point and well enough armed to make a crucial difference once there. The positive psychological impact of even a single T-26 company on the embattled defenders of Madrid was understood by both sides. It mattered little that neither Tukhachevsky nor Guderian had intended tanks to serve as crutches for a collapsing army.

Forced by a strategic *fait accompli* to support the infantry, both Thoma and Krivoshein quickly learned that intensive tank-infantry training was even more important than previously recognized. Of the senior Nationalist commanders, only Varela showed any willingness to cooperate in such a scheme, and that cooperation was limited by Franco’s overall influence. Similar preconceptions held sway among Republican generals and, had they not, another more basic problem would have remained: the strategic initiative was rarely theirs. After mid-1937, the Republic faced an ever-deteriorating situation. Battleworthy infantry formations could rarely be taken out of the line for special training and, as those formations grew smaller, the employment of T-26 and BT-5 battalions as defensive fire brigades became more frequent. Under these circumstances, full preparation rapidly became an unaffordable luxury.

Intensified combined arms training proved equally crucial later in the war, when armored breakthroughs and exploitations were attempted on narrow fronts. In March, 1937, road-bound Italian tankettes outran their accompanying infantry north of Guadalajara and fell easily to

Republican countermeasures. The most noteworthy Republican effort, at Fuentes de Ebro in October, also failed in large measure because the accompanying non-mechanized infantry had not practiced with the tanks beforehand.²³ This deficiency, when exacerbated by poor coordination of artillery and air support, loomed large no matter what the tanks’ mission.

Unfortunately for both German and Soviet forces, the above lessons had to be relearned during World War II. Although *panzer* divisions and tank armies were devoted to independent, strategically decisive mechanized operations, both sides used fully armored and tracked assault guns in the more conventional support role. These technological makeshifts — the *sturmgeschutz* and *SU* — did not appear until 1940 and 1942 respectively, even though the need for such large caliber direct fire weapons had been amply demonstrated at Cerro de Los Angeles in 1936.²⁴ The tank’s need for infantry protection — even in independent mechanized actions — was proven with equal clarity. Arman’s attack on Sesena, although hardly independent by design, failed because that protection was lacking. At Guadalajara and Fuentes, the riflemen who rode into combat still fought on foot, but even this lesson was apparently forgotten. Had it been remembered, no reconfiguration of the *panzer* division would have been necessary after September, 1939. Indeed, several such reorganizations took place and, each time, the ratio of tanks to *panzergrenadiers* decreased.²⁵

When considered in their true perspective, rather than in hindsight-aided assessments of later German successes against France and the Soviet Union, the opening tank actions of the Spanish Civil War appear neither as flawless manifestations of later *blitzkrieg* doctrine nor as unqualified indications that *PU-36*’s long range independent operations had been a bad idea. They remind us instead that the most successful tactical solutions often begin as local responses to local conditions, and that theories developed during peacetime in the higher echelons have ultimately to be tested in battle at the lowest. Some successors to Thoma and Krivoshein struggled to discover the

Two BT-5 tanks destroyed in the battles near the Ebro River in 1938.



same solutions anew while others mistakenly applied them on the wrong scale. Nevertheless, the solutions themselves remained valid.

Notes

¹Krivoshein, "Tanquistas Voluntarios Sovieticos en la Defensa de la Madrid," in N.N. Voronov, *Bajo de la Bandera de la Espana Republicana: recuerdan los voluntarios sovieticos participantes en la guerra nacional revolucionaria en Espana* (Moscow: Editorial Progreso, 1971) p. 325. Originally published as "Tankisty Dobrovoltsy," in Voronov, *Pod Znamenem Ispanikoi Respubliki: 1936-1939* (Moscow: Nauka, 1965).

²Premier Francisco Largo Caballero, text reprinted in *Solidaridad Obrero*, 30 Oct 1936, quoted in Manuel Aznar, *Historia Militar de la Guerra de Espana*, vol 2 (Madrid: Editora Nacional, 1958), pp. 455-6.

³Ramon Sender, *Counterattack in Spain* (Boston: Houghton Mifflin, 1937), pp. 217-220; quote, p. 218. General accounts of the 29 October operation are found in Juan Modesto, *Soy del Quinto Regimiento: notas de la guerra de Espana* (Paris: Librairie du Globe, 1974), pp. 113-114; Enrique Lister, *Nuestra Guerra* (Paris: Coleccion Ebro, 1966), pp. 80-83; I. Batov, in Voronov, ed. *Bajo de la Bandera*, pp. 281-284. A more detailed account, which notes the role played by mistaken identity in the initial engagement is found in Mikhail Koltsov, *Diario de la Guerra de Espana* (Paris: Ediciones Ruedo Iberico, 1963), pp. 161-164.

⁴Sender, p. 219. Compare this account with Lister's less agitated version in *Nuestra Guerra*, pp. 81-83.

⁵Koltsov, pp. 162-3.

⁶*Ibid.*; Lister, pp. 80-83; Modesto, pp. 113-114; Krivoshein, pp. 326-7.

⁷Canaris, quoted in Peter Elstob, *The Condor Legion* (New York: Ballantine, 1973), p. 107.

⁸Krivoshein, pp. 326-327.

⁹*Ibid.*, pp. 328-329.

¹⁰*Ibid.*, pp. 329-330.

¹¹*Ibid.*, pp. 330-332.

¹²*Ibid.*, p. 333. General accounts of the Republicans' retrograde from the Sesena-Esquivias-Torrejón line are found in Lister, pp. 81-7; Sender, pp. 234-250.

¹³Krivoshein, pp. 334-5.

¹⁴*Ibid.*, pp. 336.

¹⁵*Ibid.*, pp. 336-7.

¹⁶*Ibid.*, pp. 337-8.

¹⁷See, for example, telegram nos. 399 (29 Sept.), 407 (30 Sept.), and 690/259758-61 (16 Oct.) from Charge d' Affaires Hans Voelckers, in Alicante, to *Deutsches Auswartigesamt*, reprinted in United States. Department of State. Documents on German Foreign Policy, 1918-1945: from the archives of the *Deutsches Auswartigesamt*, series D vol. 3, *Germany and the Spanish Civil War, 1936-1939*, pp. 100-102.

¹⁸The compromise of Nationalist operational plans is noted in Voronov, p. 89.

¹⁹Krivoshein, pp. 338-339.

²⁰Kenneth Macksey, *A History of Armored Fighting Vehicles* (New York: Scribners, 1977), p. 91.

²¹Manfred Merkes, *Die Deutsche Politik im Spanischen Burgekrieg, 1936-1939* (Bonn: Ludwig Rohrscheid, 1969), pp. 67-68; Werner Beumelburg, *Kampf um Spanien: die geschichte der Legion Condor* (Oldenburg: Gerhard Stalling, 1942), p. 36.

²²Rodion I. Malinovsky "Torbellinos de ira en Espana," in Voronov, pp. 11-12; Nikolas G. Kuznetsov, "Con los marinos espanoles en su guerra nacional-revolucionaria," in Voronov, pp. 179-193.

²³Tom Wintringham, *English Captain* (London: Faber and Faber, 1939), pp.304-307; John Gates, *Diary of an American Communist* (New York: Thomas Nelson and Sons), p. 51.; Al Amery, "Fuentes de Ebro," in Alvah Bessie and Albert Prago, *Our Fight: Writings by Veterans of the Abraham Lincoln Brigade — Spain, 1936-1939* (New York: Monthly Review Press, 1969), pp. 181-191 passim.

²⁴Christopher Ellis, *Tanks of World War II* (London: Octopus, 1981), p. 183, 193.

²⁵Matthew Cooper, *The German Army, 1933-45: Its Political and Military Failure* (New York: Stein and Day, 1978; reprinted, Lanham, Md.: Scarborough House, 1985), pp. 210, 272-278.

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