



# The Russian Invasion of Ukraine

## Part I: The Physical Campaign Maneuverist Paper No. 21

by Marinus

**J**ohn R. Boyd, the premier theorist of maneuver warfare, often argued that wars are waged on three levels. At the physical level, units and formations move, occupy, attack, and defend in order to frustrate, isolate, weaken, and destroy hostile forces. At the mental level, belligerents employ various combinations of strategy and stratagem to sow confusion, conundrum, and cognitive dissonance in the minds of their foes. At the moral level, actors strive to convince all concerned that they are more truthful, humane, just, and reliable than their adversaries.<sup>1</sup>

In any given struggle, observers will often find that it is easier to track the movements of columns, the extent of deployments, and the damage done by fire than observe changes taking place in minds and hearts. Thus, even when the effects achieved in the mental and moral arenas prove more powerful than those wrought by flesh and steel, people trying to make sense of a particular conflict will often begin with an examination of purely physical phenomena. Thus, the first part of this two-part article will deal with the concrete aspects of the Russian invasion of Ukraine and the second will attempt to identify the effects of those actions on the mental and moral planes.

### Missile Strikes

In the Russian invasion of Ukraine that began on 24 Febru-

ary 2022, the first great act to take place in the physical realm consisted of a series of strikes, carried out by as many as 300 guided missiles against fixed installations. Some of these were short-range ballistic missiles, mostly (if not exclusively) of a type (Iskander-M) introduced in 2005. Others were cruise missiles of the Kalibr family. (While the ballistic missiles were normally fired from ground vehicles, the cruise missiles seem to have been launched by a combination of ships at sea and bombers in flight.)

Many, if not most, of the targets struck in the initial missile bombardment were things, such as runways and radars, that supported the employment of Ukrainian military aircraft. The purpose of such strikes, however, seems to have been less a matter of ensuring Russian control of the skies than of depriving Ukrainian jets, helicopters, and drones of the ability to hamper the movement of Russian ground forces. That is, while some of the Russian missiles destroyed elements of the Ukrainian air defense system, the relative absence of Russian manned aircraft in the skies over Ukraine in the first few days of the invasion suggests that some Ukrainian anti-aircraft missile batteries survived the initial onslaught.<sup>2</sup>

In the days that followed, the missile strikes continued, albeit at a somewhat reduced pace. Nearly all the targets

*Miniature loitering munitions such as the Switchblade Drone being used here by a Marine from 2nd MARDIV during a training exercise in 2021 are increasing the lethality of small ground units against armor and other concentrated targets in Ukraine. (Photo by PFC Sarah Pysher.)*

struck, with unprecedented degrees of precision, were either buildings used exclusively for military purposes or facilities, such as those found at civilian airports, that could easily be converted to military use. (The great exception to the general rule of the purely military character of the targets of Russian missile attacks took place on 1 March 2022, when a guided missile destroyed the main television broadcasting tower in the center of the Ukrainian capital of Kyiv.<sup>3</sup>)

### Operations Northwest of Kyiv

The second major event of the first day of the war took the form of a helicopter-borne attack against the Antonov Airport, a testing facility for aircraft located on the northwestern outskirts of the Ukrainian capital of Kyiv. Made possible by an exception to the general rule of Russian reluctance to put manned aircraft into the air, this descent resulted in the immediate capture of the airfield. This, in turn, made possible the reinforcement of the heliborne attackers with soldiers carried in transport planes. Before long, however, a counterattack by a Ukrainian brigade forced the *desantniki* to seek refuge in a nearby forest. There they awaited the arrival of the Russian mechanized forces that, having departed their assembly areas in Belarus and crossed into Ukraine near the site of the Chernobyl nuclear accident of 1986, were due to arrive at the airfield in the very near future.

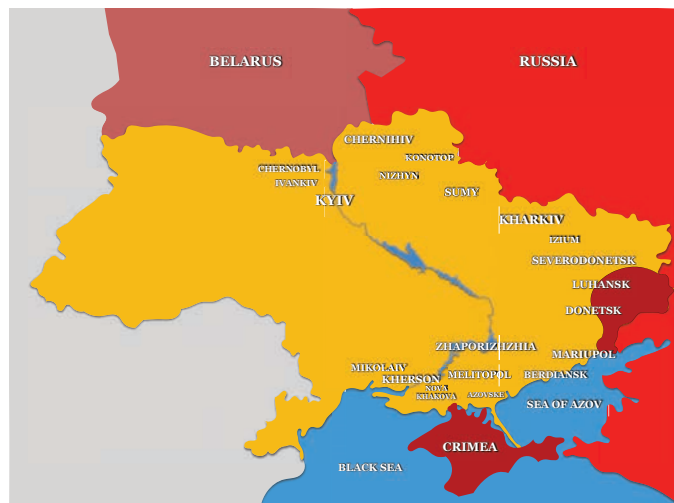
The aforementioned mechanized forces, which would link up with the paratroopers on the following day and recapture the Antonov Airport, were part of a long column, consisting of as many as 16 battalion tactical groups, that drove along the 125 or so kilometers (75 miles) of hardtop highway that connected the Chernobyl region to the suburbs of Kyiv. (If we assume that a Russian battalion tactical group consists of 142 vehicles and travels with a gap of 20 meters between each vehicle, each such formation in single file would take up 3.5 kilometers—a little more than 2 miles—of road space. However, as the last half of the journey was made over a four-lane expressway and the last quarter of the trip made use of an additional two-lane highway, the columns formed by battalion tactical groups may well have become shorter toward the end of the movement.)

Rather than pushing further into the suburbs of Kyiv, the Russians who had fought at the Antonov Airport took up defensive positions. The remainder of the Russian units that had crossed into Ukraine near Chernobyl moved through the 2,000 or so square miles of sparsely populated land along the west bank of the Kyiv Reservoir. (With a length of 80 kilometers, the Kyiv Reservoir divides the area north of Ukraine's capital into two very different regions. While the west bank is rural, swampy, and poorly supplied with roads, the east bank is home to substantial urban areas, forested nature preserves, and a network of hardtop roads, railroads, and modern highways.)

The high-water table and paucity of roads on the west bank of the Kyiv Reservoir made the Russian forces in that area dependent upon a single all-weather overland route that ran for 85 kilometers (50 miles.) Knowing this, the Ukrainian ground forces located northwest of Kyiv made at least two

attempts to cut the Russian lifeline. The largest of these attacks took place at Ivankiv, a town with a peacetime population of some 10,000 people, located at the place where the two-lane highway from Chernobyl met the four-lane expressway to Kiev. None of these enterprises, however, managed to achieve more than the creation of traffic jams. Thus, by the end of the first week of the war, the Russians enjoyed full control of the west bank of the Kyiv Reservoir and, what was more important, the single overland line of communications that ran through it.

Russian success on the west bank of the Kyiv Reservoir during the first week of the war owed much to the absence of Ukrainian military aircraft overhead. More specifically, long columns of Russian vehicles would not have been able to conduct road marches in the face of large numbers of Ukrainian ground attack aircraft, whether manned or unmanned, operating in the armed reconnaissance mode. That this did not happen seems to have been a function of two things. First, the missile strikes of the first day of the war, which were continued (albeit on a somewhat smaller scale) on the days that followed, deprived Ukrainian aviation units



**Ukraine and the surrounding area of interest. (Map by author.)**

of much of their ability to send aircraft into action. Second, the *zenitchiki* who maintained the multi-layered air defense umbrella over the west bank of the Kyiv Reservoir made it difficult for the small number of Ukrainian aircraft that managed to take to the skies to reach their intended targets.

### Operations East of Kyiv

Strange to say, the ten or so Russian battalion tactical groups deployed to the east of the Kyiv Reservoir adopted an approach that differed considerably from that employed by their counterparts to the west. Despite the presence of a road network that was much more congenial to operational movement and a railroad line that could have facilitated logistical support, the eastern movement covered much less ground. Conducted on several routes, this advance stopped short of Chernihiv, a city of some 300,000 inhabitants located

some 55 kilometers (35 miles) south of the border between Ukraine and Belarus.

In the days that followed, the Russian forces north of Chernihiv extended their positions to the east and west, turning what an earlier age would have called “an army of observation” into a semi-circle of strongholds. Several days later, the purpose of these initially puzzling positions became clear when twelve or so battalion tactical groups belonging to a different Russian field army moved in from the east. This field army, which quickly reached the northeastern suburbs of Kyiv, cut off all remaining connections between Chernihiv and the capital.

The Russian field army that completed the isolation Chernihiv had crossed into Ukraine at points some 200 kilometers (120 miles) due east of that city. They thus traveled a much greater distance than their counterparts that had entered Ukrainian territory on either side of the Kyiv Reservoir. In the course of doing this, elements of this field army surrounded, and, after a brief firefight, accepted the surrender of Konotop, the largest city along their route. (The terms of capitulation, agreed to by a Russian officer and the mayor of Konotop, kept Russian troops out of the city, left the civil administration in charge, and permitted the flag of the Republic of Ukraine to continue to fly above public buildings.)<sup>4</sup>

The field army that passed through Konotop made no attempt to occupy all of the countryside in the vicinity of the roads over which it travelled. One of the largest of the rural pockets created by this practice, which measured more than 45 miles (72 kilometers) from north to south, and 75 miles (120 kilometers) from east to west, could be found south of Chernihiv. (The Russians declined to occupy the largest urban center in this pocket, the city of Nizhyn, even though it was home to both a military airfield and a facility for the repair of armored engineer vehicles.)<sup>5</sup>

Southeast of Chernihiv, four more Russian field armies, each organized in much the same way as those already described, crossed the long frontier that separated the heartland of European Russia from the northeastern quarter of Ukraine. The northernmost of these advanced the furthest, following an east-west axis that ran parallel to that of the army that had completed the encirclement of Chernihiv. The southernmost of the four armies, which also seems to have been the smallest, made the least progress. None of its 8 battalion tactical groups advanced more than 100 kilometers (60 miles) beyond the border and some made movements that were even more modest.

Each of two field armies in the middle of the force that crossed from central Russia into Ukraine followed a path that was blocked by a large urban area. In the case of Sumy, this was a city of half a million people. In the case of Kharkiv, it was the second most populous city in Ukraine, with three times as many inhabitants as Sumy. In both cases, the Russian field armies made no serious attempts to take control of the built-up areas. Rather, after the failure of the delegations dispatched to convince local authorities to surrender, the Russians posted guards on the routes leading into the cities and continued their advance.

### Operations in the Donbass

Southeast of Kharkiv, the southernmost of the four Russian field armies in northeastern Ukraine cooperated directly with the forces of the Luhansk Peoples’ Republic, the smaller of the two pro-Russian protostates formed in the Donbass region of eastern Ukraine in 2014. While the militiamen of the Luhansk Peoples’ Republic advanced, slowly and methodically, in the direction of Severodonetsk, Russian battalion tactical groups created a series of pockets in the area between that city and the Russian border. (The second largest city in the Luhansk *oblast*, Severodonetsk served as the temporary capital of that part of the *oblast* that remained loyal to the government of Ukraine.)<sup>6</sup>

The militia of the Donetsk Peoples’ Republic resembled, in many respects, that of the Luhansk Peoples’ Republic. Both organizations consisted of self-recruiting units, some of which embraced particular ideologies, others of which maintained strong links to specific localities, and most of which followed charismatic commanders.<sup>7</sup> These idiosyncratic tendencies, already much in evidence upon the creation of these private armies in 2014, seem to have been strengthened during the seven years in which they fought against comparable organiza-

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tions in the service of Ukraine. Like the pro-Russian militias, the armed non-state actors on the Ukrainian side acquired considerable experience with infantry-intensive battles for control of villages, towns, and urban neighborhoods.

While many men skilled in the arts of fighting on foot, especially in built-up areas, served in the ranks of the militias of the pro-Russian protostates, the dismounts of Russian battalion tactical groups of the Russian Army were both few in number and oriented towards close cooperation with armored fighting vehicles. Similarly, where the logistics infrastructure supporting the protostate militias had been built up over the course of seven years of position warfare, the truck convoys that supported battalion tactical groups had to deal with a limited road network, drone attacks, and partisans. Thus, while the self-propelled howitzers and multiple rocket launchers of a battalion tactical group were limited to a small number of brief fire missions, the improvised artillery batteries of the militias often possessed the ability to conduct bombardments more extensive in both time and space.

The characteristics of the two basic types of ground forces on the Russian side led easily to a division of labor in which militia units *fixed* while battalion tactical groups *flanked*. In the many towns and cities of the Donbass, the somewhat smaller cauldrons created by such tactics proved much more

difficult to reduce than the larger encirclements formed by the rapid passage of battalion tactical groups through rural regions. At the same time, commanders of private armies were rarely in a position to bypass such pockets, especially when they sheltered similar forces fighting for the other side. (This phenomenon could be seen, not only in the epic struggle for control of the city of Mariupol but also in the shorter, smaller, but no less ferocious fights for towns like Volnovakha.)

The three-week struggle for possession of Iziium, a town of some 60,000 people about 75 miles (120 kilometers) southeast of Kharkiv, provides an interesting exception to the Russian policy of bypassing built-up areas. During the second week of the campaign, Russian forces entered the northern part of this town. At the same time, more or less, Ukrainian forces entered Iziium from the south. After a brief encounter battle, position warfare set in, with the Russians holding the north bank of the river that ran through the middle of the town and the Ukrainians defending the south bank of that obstacle. This stalemate ended the last week of March when a Russian task force moved into the open ground south of the built-up area. Complicated by the need to assemble pontoon bridges under fire, this maneuver failed to completely isolate the defenders of the southern part of Iziium. It did, however, convince the Ukrainian leadership to withdraw its forces from the town.

The Russian decision to occupy, rather than merely bypass, Iziium seems to stem from a desire to use that town as a starting point for one of the two wings of the single most important operational maneuver of the invasion of Ukraine, the encirclement of the many Ukrainian formations fighting in the Donbass. In particular, possession of Iziium gave the Russians free use of the five highways that met in the town, a railroad line that ran all the way to Kharkiv (and, from there, all the way to Moscow), and an area well-suited to the creation of a large logistics base. (Iziium sits on the western side of the Oskil Reservoir, which protects it, and several hundred square miles of its environs, from overland attacks coming from the east.)

### Operations along the Sea of Azov

In the southwest corner of the Donbass, the war began with an attack, conducted largely by armed non-state actors based in territory controlled by the Donetsk Peoples' Republic, in the direction of Mariupol. Ukraine's largest port on the Sea of Azov, Mariupol was home to nearly half a million people, nine-tenths of whom spoke Russian as their first language. Nonetheless, in the great crisis of 2014, the city had managed to avoid incorporation into the pro-Russian protostate being formed in the territory of the Donetsk *oblast*. It thus became a symbol of Ukrainian resistance to Russia, as well as home to private armies, such as the infamous Azov Battalion, allied to the government in Kiev.

The first attack upon Mariupol, and the many other attacks that followed over the course of the first eight weeks of the war, took the form of methodical attempts to seize particular pieces of terrain. They thus proved more costly to the fighters involved, more destructive of urban infrastructure, and

more dangerous to civilians than the operations conducted by battalion tactical groups elsewhere in Ukraine. Depending, as they did, on large amounts of ammunition, these attacks also placed greater demands upon the Russian supply system.

On 27 February 2022, Russian forces attacking from Crimea took control of Berdiansk, the second largest Ukrainian port on the Sea of Azov.<sup>8</sup> As the port facilities were captured intact, the Russians quickly transformed Berdiansk into a supply base for the many battalion tactical groups that were then moving through the oblast that lay just west of Mariupol, that of Zaporizhzhia. (While some of these formations were moving to the east, to link up with the pro-Russian forces in the vicinity of Mariupol, others were moving north, to the south bank of the greatest of Ukraine's many rivers, the Dnipro.)

The Russian army formations in Zaporizhzhia, all of which had started the war in Crimea, had entered Ukraine by means of three corridors. The widest of these, which accommodated both road and rail traffic, sat atop the only isthmus connecting the Crimean Peninsula to the mainland of Ukraine. The second took the form of a single two-lane highway interrupted by a narrow strait. The third corridor, the narrowest of all, consisted of a country road that served the many little vacation villages situated upon a sandbar that ran along all 70 miles (112 kilometers) of the northeastern coast of Crimea. (Reaching the Ukrainian mainland by means of the latter two corridors required the crossing of bridges. One of these bridges, which spanned the aforementioned strait, marked the border between Crimea and Ukraine. The other, which crossed a river at the north end of the sand bar, lay entirely within Ukrainian territory.)

The ease with which these corridors could have been blocked suggests that the Russians attempted to gain control of chokepoints early on the first day of the war. In two cases, these attempts seem to have succeeded, for nothing seems to have impeded the rush of battalion tactical groups across either the isthmus or the strait. However, the Russian Marines who came ashore at the village of Azovske, just north of the terminus of the third route, proved unable to prevent Ukrainian engineers from blowing up the bridge that connected the sandbar to the mainland.

History has yet to record whether or not the Russian naval infantry units that landed at Azovske had been given the task of securing the bridge.<sup>9</sup> Indeed, we do not yet know if the Russians made any use at all of a route that was, at once, vulnerable to interruption and poorly suited to heavy traffic. What is certain, however, is that the Russian Marines, who were mounted in armored personnel carriers, spent very little time on the beach. Instead, they drove towards the city of Melitopol, some 53 miles (84 kilometers) inland from their landing site.<sup>10</sup>

### Operations in Kherson and Mykolaiv

Not all of the Russian formations that had entered Ukraine from Crimea moved into Zaporizhzhia. Substantial forces headed northwest, to the two places in the oblast of Kherson where highway traffic was able to cross the Dnipro. Before

the end of the first day of the operation, one of these columns had captured the easternmost of these crossings, which ran along the top of the dam at Nova Khakovka. At the same time, another column captured but failed to hold the bridge at Antonivka, an industrial suburb of the city of Kherson. In the days that followed, while the Russian forces at Antonivka engaged in a see-saw battle for control of the bridge, several battalion tactical groups crossed the Dnipro at Nova Khakovka and surrounded the city of Kherson.

While some of the Russian formations that had crossed the Dnipro blocked the routes out of Kherson, others pushed west. By the time that Kherson surrendered (1 March 2022), these latter forces had reached the outskirts of Mykolaiv, Ukraine's second largest port on the Black Sea. Notwithstanding the importance of that city to the Ukrainian Navy, the Russian formations operating in the vicinity of Mykolaiv made no attempt to take it.<sup>11</sup> Rather, they took control of routes leading into the city, sent battalion tactical groups on reconnaissance-in-force missions, and left the task of destroying the many military and naval facilities in the area to guided missiles and aircraft.<sup>12</sup>

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#### Attacks on Ukrainian Logistics

Over the course of the month of March, the Russian campaign of missile strikes against static targets changed its emphasis from facilities associated with Ukrainian military aviation to installations, such as depots for motor fuel, ammunition warehouses, and workshops, that supported ground forces. On the night of 19–20 March 2022, for example, Kalibr cruise missiles fired from Russian ships in the Black Sea, struck the engineer vehicle factory in Nizhyn, some 40 miles (64 kilometers) southeast of Chernihiv. (The Russian press release describing this strike characterized the factory as a place where Ukrainian armored vehicles damaged in combat were being repaired.) On that same night, hypersonic missiles hit a fuel storage and distribution center in the town of Kostyantynivka, about 40 miles northwest of Mykolaiv.

The shift in emphasis of the guided missile campaign coincided with a substantial increase in the number of ground attack missions flown by Russian military aircraft. While a small proportion of these struck the same sort of targets as missiles, most of the ground attack sorties seem to have been directed toward strong points and areas of military equipment concentration.<sup>13</sup> (Surprisingly, there are no reports of Russian aircraft operating in the armed reconnaissance mode.

It remains to be seen whether this is a function of a change in practice or merely an artifact of a paucity of major road movements on the part of Ukrainian ground forces.)

#### Redeployment

During the first three days of April 2022, all of the Russian ground forces that had been operating on either side of the Kiev Reservoir, as well as those in the northeast corner of Ukraine, returned to their assembly areas in Belarus and Russia. As a result of this grand movement, somewhere between 60 and 65 percent of the Russian ground forces in Ukraine became available for redeployment. To put things another way, the withdrawal of a substantial portion of the Russian invasion force created the possibility of the assembly of a powerful operational reserve.

During the second week of April, some of the Russian formations that had been withdrawn from northern Ukraine, as well as a number of fresh formations, arrived in the vicinity of Izium. There they took part in an advance towards Severodonetsk that, if completed, would create a pocket north of the territory controlled by the militia of the Luhansk Peoples' Republic.

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*>Author's note: This article was delivered to the editor on 14 April 2022. It was thus written without knowledge of any events that took place after that date.*

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#### Notes

1. For a concise explanation of Boyd's three levels of war, see William S. Lind, "John Boyd's Art of War," *The American Conservative*, (August 2013), available at <https://www.theamericanconservative.com>.
2. Justin Bronk, "The Mysterious Case of the Missing Russian Air Force," *RUSI*, (February 2022), available at <https://rusi.org>.
3. Ryan Merrifield and Sam Elliot-Gibbs, "Kyiv TV Tower Explodes after Russia Warns of Missile Strikes in Ukraine Capital," *Mirror*, (March 2022), available at <https://www.mirror.co.uk>.
4. Natalia Gurkovskaya, "Fighting in Sumy Region: Konotop Authorities Hold Talks with Occupiers after Ultimatum [Бої на Сумщині – влада Конотопа провела переговори з окупантами після ультиматуму]," *RBC.UA*, (March 2022), available at <https://www.rbc.ua>.
5. Staff, "Nizhyn Repair Plant of Engineering Vehicles" [Нежинський ремонтний завод інженерного вооруження], *Guns.UA*, (n.d.), available at [www.guns.ua](http://www.guns.ua).
6. Often, though not invariably, named for the city that serves as its capital, an *oblast* is an administrative district that corresponds, more or less, to an English county or a French department.
7. For a detailed description of the component units of the New Russian militias, see Tomáš Šmíd and Alexandra Šmídová, "Anti-Government Non-State Armed Actors in the Conflict in Eastern Ukraine," *Mezinárodní Vztahy: Czech Journal of International Affairs*, (Prague: Institute of International Relations, June 2021).

8. Staff, "Russian Forces Seize Port of Berdyansk," *The Maritime Executive*, (February 2022), available at <https://www.maritime-executive.com>.

9. Some observers have confused the Azovske where the landing of Russian Marines took place with another village of the same name in the environs of the port of Berdiansk, some 95 miles (150 kilometers) to the east. This mistake, in turn, has led to the often-repeated assertion that the landing of the naval infantry units took place 70 miles (112 kilometers) west of Mariupol. For an example of the latter error, see Staff, "Russian Navy Carries Out Amphibious Assault Near Mariupol," *The Maritime Executive*, (February 2022), available at <https://www.maritime-executive.com>.

10. Staff, "Russian Troops Welcomed with Flags in Ukraine's Melitopol," *Tass*, (February 2022), available at <https://tass.com>.

11. The absence of Russian attempts to take Mikolaiv led to many tales of small Ukrainian detachments stopping much larger Russian forces.

For some colorful examples, see Yaroslav Trofimov, "Ukrainian Counteroffensive Near Mykolaiv Relieves Strategic Port City," *The Wall Street Journal*, (March 2022), available at <https://www.wsj.com>.

12. For an account of one of the many missile strikes upon targets in Mikolaiv, see Michael Schwartz, "Russian Rocket Attack Turns Ukrainian Marine Base to Rubble, Killing Dozens," *New York Times*, (March 2022), available at <https://www.nytimes.com>.

13. For examples of Russian reports of the results of such attacks, see the daily briefings on the official Telegram channel of the Russian Ministry of Defense ([t.me/mod\\_russia\\_en](https://t.me/mod_russia_en)).



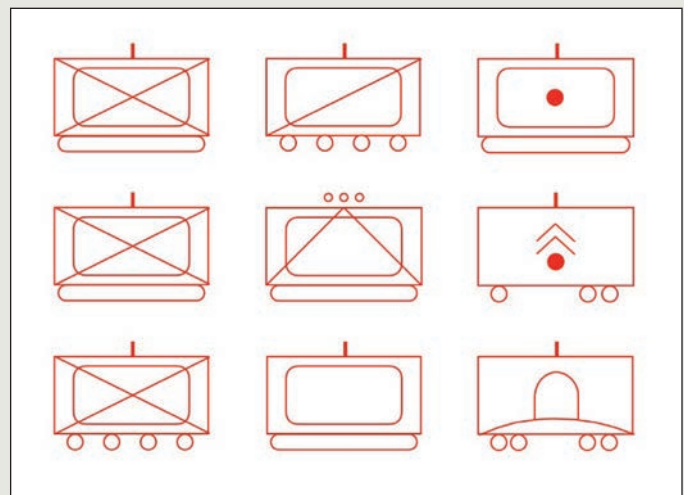
## Battalion Tactical Groups

The basic building block of the Russian ground forces that invaded Ukraine on 24 February 2022 is the "battalion tactical group" [batal'onnyaya takticheskaya gruppya]. As their name suggests, these combined-arms formations are often used for tactical purposes. Nonetheless, there were occasions during the first few days of the Russian invasion of Ukraine of 2022 when battalion tactical groups were given missions of direct operational significance. These included the seizure of bridges and "fighting for intelligence" [razvedka boyem]. The latter, which can also be translated as "reconnaissance by combat," involved the conduct of attacks on a relatively small scale to locate exploitable gaps in Ukrainian defenses. It thus has much in common with the classic maneuver warfare technique of "reconnaissance pull."

In terms of organization, battalion combat teams have much in common with the battalion combat teams employed by the Army and Marine Corps for the past eighty years. Like American battalion combat teams, Russian battalion tactical groups consist of an infantry battalion that has been reinforced with smaller units of other arms. Battalion tactical groups, however, tend to have much more in the way of artillery than their American analogs. Where the normal American battalion combat team has long been provided with a single battery armed with the standard direct support field piece of the day, the artillery of a typical Russian battalion tactical group consists of a battery of self-propelled 152mm howitzers, a battery of truck-mounted multiple rocket launchers, and a battery of short-range anti-aircraft missile launchers.<sup>1</sup>

### Notes

1. This description of the organization of a typical Russian battalion tactical group is taken from an infographic posted on the (currently inaccessible) website of the Russian Ministry of Defense.



**Figure 1. The combat elements of a typical Russian battalion tactical group. (Figure by author.)**