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AIR WARFARE OVER UKRAINE AND INTERNATIONAL HUMANITARIAN LAW

Abstract. The Russian aggression against Ukraine involves extensive use of air power, proving that without the sufficient level of air control, the combat operations on the ground face significant operational challenges. The use of air power raises questions regarding the legality of the aerial actions conducted over Ukraine. This conflict in the air domain is characterised by separate campaigns. The first one was a battle over the air superiority of Ukraine, which was relatively short in time (February–April 2022), albeit intense, and lost by the Russian Air Force due to the inability to destroy Ukrainian air defence assets and Ukrainian military aviation. The second one, still in progress at the moment this article is being written, looks to become an unresolved contest of attrition, as both belligerents vastly increased their air disruption capabilities. In particular, during the last period of the first phase, it is believed that many of the Russian air strikes were, in fact, indiscriminate or deliberately directed against civilian objectives. The aim of the article is to analyse the overall conduct of the air war over Ukraine and pinpoint the legal challenges in assessing the legality of such air operations. In the context of available information, the paper will seek to understand the legal framework concerning the destruction of the An-225 at the Hostomel airport during the first phase of hostilities, the use of certain aerial weapons, and the selection of targets.

Keywords: Russian aggression against Ukraine, international law, international humanitarian law, air bombardment, use of air power

WOJNA POWIETRZNA NAD UKRAINĄ W ŚWIETLE MIĘDZYNARODOWEGO PRAWA HUMANITARNEGO

Streszczenie. Rozpoczęta 24 lutego 2022 roku agresja rosyjska przeciwko Ukrainie objęła jako kluczowy element walki zbrojnej działania lotnictwa wojskowego. Od 1939 roku celem każdej strony w konflikcie zbrojnym jest zdobycie przewagi w powietrzu jako czynnika warunkującego sukces operacji lądowej. Kampania nad Ukrainą może być podzielona na dwa etapy. Pierwszy to

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walka o przewagę powietrzną, odbywająca się w lutym – kwietniu 2022 roku, która zakończyła się porażką rosyjskiego lotnictwa niezdolnego do zniszczenia zasobów powietrznych lotnictwa ukraińskiego oraz ukraińskiej obrony przeciwlotniczej. W ramach walk miejskich jakie miały miejsce podczas tej fazy uważa się, że wiele z bombardowań powietrznych wykonywanych przez lotnictwo rosyjskie nosiło znamiona naruszających zakaz bombardowań bez rozróżnienia, bądź bezpośrednio wymierzonych w ludność cywilną. W dalszej części konfliktu, przeszedł on od fazy wojny manewrowej do statycznego konfliktu na wyniszczenie, w którym żadna ze stron nie jest w stanie wystarczającej przewagi nad drugą. Zjawisko wojny powietrznej jest regulowane odpowiednimi normami międzynarodowego prawa humanitarnego (prawem wojny powietrznej). Artykuł ma na celu zbadać przebieg kampanii powietrznej nad Ukrainą w kontekście prawnym, wskazując na wyzwania i trudności związane z praktycznym stosowaniem prawa wojny powietrznej, analizując wybrane przypadki takie jak zniszczenie An-225 na lotnisku Hostomel w pierwszych chwilach konfliktu, dobór broni stosowanych przez strony oraz wybór celów.

Słowa kluczowe: Rosyjska agresja przeciwko Ukrainie, prawo międzynarodowe, prawo wojny powietrznej, bombardowania lotnicze, lotnictwo

1. OPENING REMARKS

The aerial campaign over Ukraine is governed by the laws of air warfare, which are applicable on the full spectrum during international armed conflict. Not all spheres of air warfare are regulated by treaty law. While the Additional Protocol I to the Geneva Conventions of 1977 (AP I) is applicable to air-to-ground operations (including bombardment), air-to-air encounters are regulated by customary law reflecting the AP I (Venturini 2021, 365). Many other rules of customary character are a reflection of the Hague Rules of Air Warfare of 1923 (e.g. the status of military aircraft) (Gestri 2006, 140). Despite the lack of a dedicated treaty concerning air warfare, the accepted standpoint of the *de lege lata* of what constitutes the law of air warfare is contained in manuals, namely the San Remo Manual on International Law Applicable to Armed Conflicts at Sea, and, notably, the HPCR Manual on International Law Applicable to Air and Missile Warfare (Robertson 1998, 124).

It is essential that an important remark be made at the beginning of this article. So far, no international institutions, including the Organization for Security and Cooperation in Europe (OSCE), the International Criminal Court (ICC), and the United Nations' (UN) inquiry commission, has had full access to the military records and targeting data of both Ukrainian and Russian armed forces. There is a strong indication and enough credible evidence to call the Russian Federation conduct during the aggressive war against Ukraine a systematic breach of international humanitarian law.¹ However, this article refers

¹ "The Commission has concluded that Russian armed forces committed indiscriminate and disproportionate attacks, in violation of international humanitarian law, some of which amounted to the war crime of excessive incidental death, injury, or damage." Independent International Commission of Inquiry on Ukraine, A/HRC/52/CRP.4

to the potential violation of the “Law of the Hague” and the current shape of the international jurisprudence and doctrine discussion highlighting the significant difficulties in formulating categorical statements regarding the war crimes related to the indiscriminate bombardment.² Three aspects need to be highlighted in this regard. Firstly, war crimes are committed only intentionally, and honest mistakes in the targeting process invalidate the required *mens rea*.³ Secondly, international humanitarian law only mitigates the calamities of the armed conflict, meaning that in specific circumstances some level of harm done to civilian population and civilian infrastructure might not be unlawful due to the proportionality rule (Bellar, Casey-Maslen 2022, 152–153). Thirdly, the review of the military operations, air bombardment included, needs to assess the situation from the *ante factum* perspective, not *post factum* as per the “Rendulic rule” (DeSon 2016, 116). While one cannot be deluded by the explanation commonly offered by the Russian military that every strike against objects, infrastructure, or buildings has military justification, the courts and prosecution authorities need to carefully examine the circumstances surrounding the attacks from the air, including the technical, intelligence, and battlefield data (Piątkowski 2021, 523–524).

2. ORDRE DE BATAILLE AND THE STATUS OF MILITARY AIRCRAFT

It has been estimated that on February 24th, 2022, the Ukrainian Air Force possessed circa 20 Su-24s (bombers), 31 Su-25s (tactical bomber), 34 Su-27s (multi-role fighter), and 37 MiG-29s (fighter), which were inherited by Ukraine after the collapse of the USSR. The Ukrainian Air Force’s most precious assets were withdrawn from fighting in eastern Ukraine (2014–2015) and since then have been preserved for the protection the Ukrainian airspace in the central and western regions. The Russian Air Force potential includes over 300 fighters and multi-role planes (planes based on the Su-27 airframe family) and approximately 245 bomber aircraft. Russian aviation possesses different kinds of air armament in their inventory, and while many of them are considered to be precision-guided munitions, such as Kalibr (CEP 2–3 meters), Kh-59 (CEP 3 meters), or Kh-47 Kinzhal missiles (CEP 10 meters), Russian aircraft extensively use non-guided bombs, such as FAB-500 or FAB-1000, which are wide-blast radius aerial bombs.

² E.g. ICTY, Prosecutor v. Gotovina et al. (IT-06–90), Appeals Chamber Judgement November 16th, 2012.

³ Article 32(1) of the Rome Statute of the International Criminal Court. “For example, the war crimes of intentionally directing attacks against the civilian population or against civilian objects require knowledge that the persons or objects subject to attack are civilian. An honest mistaken belief that these persons or objects are not civilian would therefore negate the mental element of the crime. The standard is purely subjective; there is no requirement that the belief be both honest and reasonable” (Milanovic 2023).

Both parties generally adhered to the customary conditions required for a status of military aircraft.⁴ However, during the air assault against Hostomel on February 24th, 2022, one of the downed Russian helicopters Ka-52 bore no Russian military markings.⁵ On another occasion, Russian attack Su-25 aircraft had their markings covered by the letter “Z” – a tactical identification of the Russian forces during the aggression against Ukraine.⁶ On the other hand, the ex-Slovakian MiG-29 was delivered to the Ukrainian Air Forces flown through the border with removed national markings of Slovakia and without any corresponding markings of the Ukrainian armed forces.⁷ These incidents are isolated; however, flying in unmarked (or in improperly marked) aircraft creates a significant operational risk for the crew, as markings are “sufficient indication of combatant status” and, therefore, a violation of customary rule of international law implying the responsibility of a state (HPCR 2009, 317). The practice of the belligerent to mark the military aircraft has also been reported in the context of unmanned aircraft, although it is not clear why some small UAVs are not marked, while the significantly larger UAVs (e.g. Orion or Bayraktar) bear the emblems of the Ukrainian and Russian air forces. Under the definition of military aircraft, such a distinction had no justification behind it (small and large UAVs are aircraft in legal terms); however, it is possible to assume that a rise of the “possible emerging interpretation of existing rule” may be observed, formulating another deviation from the customary rule to mark military aircraft (Piątkowski 2022).

3. THE BEGINNING OF THE HOSTILITIES

The ominous sign of the incoming invasion was the NOTAM (Notice to Airmen) issued by the Russian civil aviation authorities in the early hours of February 24th, 2022, closing the airspace for civilian traffic in the southern section of Russia, citing “special activities airspace.” Immediately, the same NOTAM was issued by the Ukrainian authorities, which ceased all the commercial activities above Ukraine.⁸ The closure of the airspace in the area of air operations was successful and could be used as a template for the eventual future armed conflicts. The belligerents are especially obliged to abstain from harming the commercial, civilian aviation (despite the fact that AP I to the Geneva Convention of 1977 does

⁴ “Military aircraft means an aircraft operated by commissioned units of the armed forces of a State having the military marks of that State, commanded by a member of the armed forces and manned by a crew subject to regular armed forces discipline” San Remo Manual on International Law Applicable to Armed Conflicts at Sea, 1994, Rule 13(j).

⁵ <https://twitter.com/EuromaidanPR/status/1499119413009817603/photo/1> (accessed: 14.12.2023).

⁶ <https://twitter.com/MPiatkowski1/status/1531559251805618177/photo/1> (accessed: 14.12.2023).

⁷ <https://twitter.com/i/status/1639086379203461121> (accessed: 14.12.2023).

⁸ <https://twitter.com/flightradar24/status/1496667700151599107/photo/1> (accessed: 14.12.2023).

not refer to air-to-air operations, under customary law its provisions are equally applicable in air-to-air encounters) (Schmitt 2014, 124; Grzebyk 2018, 168). The Ukraine experience is based on a bitter consequence stemming from the Malaysia Airlines MH-17 tragedy over eastern Ukraine on July 17th, 2014. There have been some ongoing discussions as to whether the Ukrainian civilian aviation authority's failure to close the airspace over Donbass (the airspace was closed only partially) and the area of hostilities between the Russian-backed forces of so-called Donetsk and Lugansk territorial entities contributed to the destruction of the Malaysian aircraft.

The air belligerent operations started as soon as the FORTE12, the USAF Global Hawk, left the Ukrainian air space on 4:15–4:30 A.M. CET February 24th, 2022. The reports indicated that the Russian special operations activities and the first border crossing occurred even earlier (between 1:00 A.M.–3:00 P.M.). The air operations in Ukraine started with the opening salvo of the Russian Air Force and missiles: cruise missiles “Kalibr” and ballistic missiles “Iskander” (Popmer, Tuganov 2023, 73–76). The first Russian strikes were conducted against the bases of the Ukrainian aviation: the Ozerne Air Base, the Ivano-Frankovsk Air Base (MiG-29),⁹ the Khemelnitsky Air Base, the Lutsk Air Base, the Melitopol Air Base, the Myklaiv Air Base (Su-25), the Myrhorod Air Base (Su-27), the Starokonstantyniv Air Base (Su-24), the Vasylkiv Air Base (MiG-29). Some of those attacks destroyed Ukrainian military aircraft (such as Su-27 on the Ozerne Air Base¹⁰), but overall inflicted moderate damage to the airport infrastructures. Some of the destroyed Ukrainian aircraft were already obsolete and in reserve due to their lack of air-worthiness. The majority of the opening attacks were directed against the radar installations and the anti-aircraft positions. Nevertheless, the main bulk of the Ukrainian air defence, including the S-300 surface-to-air missile (SAM), survived the initial attacks and alongside Ukrainian fighters successfully defended the Kiev airspace during the first phase of the war. On February 24th, 2022, the Russian Air Force was involved in multiple dogfights against the Ukrainian Air Force fighter fleet consisting of Su-27s and MiG-29s. Despite the attacks directed against the air force infrastructure, most of the Ukrainian Air Force assets survived the initial wave of missile and air strikes (Bronk, Reynolds, Watling 2022, 14).

As observed by the co-author of this article, many interesting conclusions may be drawn relating to the fate of the Kherson-Chornobaivka Air Base, home to the 11th Separate Army Aviation Regiment. Two facts are important. Firstly, the Chornobaivka Air Base is, in fact, part of the Kherson International Airport, an airport which operates regular commercial flights to Kiev. Secondly, most of the precious assets of the 11th Separate Army Aviation Regiment had been relocated

⁹ https://m.facebook.com/watch/?v=503212311154165&_rdr (accessed: 14.12.2023).

¹⁰ <https://twitter.com/josephhdempsey/status/1498958500097048576> (accessed: 14.12.2023).

before the initial Russian strikes. Only the helicopters that were obsolete and unworthy to fly were left.¹¹ Here the legal question arises: can obsolete, damaged or non-airworthy military aircraft be targeted? This requires an in-depth analysis of the military objective definition as provided by the art. 52(2) of the AP I (Marcinko 2019, 404). Two elements constitute what could be targeted during the hostilities: “nature, location, purpose or use” of the objective effectively contributing to military action and the existence of the ‘definite military advantage’ emanating from destruction, capture or neutralisation” (Mauri 2022, 144). Military aircraft are natural military objectives (“by nature”) (Oeter 2013, 171). However, if one considers that the targeted air assets of the Ukrainian Air Forces parked on the airstrips across Ukraine were obsolete, damaged, or in bad technical condition, it seems problematic to accept that those aircraft “were contributing to military action” and had real military value at the time of the attack. On the other hand, in the context of a long-term air campaign, even the obsolete airframe has a potential to be refurbished. This piece of deliberation will be expanded in detail in the paragraph concerning the An-225.

4. FIRST STRIKES AND THEIR COMPLIANCE WITH IHL

Despite the forecasts, the Russian initial strikes were quite limited in scope and range. Their goal was, rather, to create the impression of overwhelming advantage over Ukrainian Air Forces, but, in fact, the strikes did not significantly degrade the abilities of the Ukrainian forces. Since 1939, every major military conflict has been initiated through air strikes against the enemy’s air force’s infrastructure (Cooling 1994). The list of the strikes during the initial phase of almost every initial air operation is the same: military airfields, air assets, radar sites, and air defence systems. The neutralisation of such objectives is a precondition to victory, as air superiority efficiently lends support to the ground or naval operations. Clearly, military aircraft, air forces bases or air strips, anti-aircraft installations, and radar sites are lawful military objectives under art. 52(2) of the AP I. It is generally understood that the Russian Air Forces failed to achieve this goal, as the first strikes did not degrade the capabilities of either Ukrainian air forces and anti-aircraft defence (Gordon 2023).

The interesting case is the question of international airports as lawful military targets. In 2003, it was criticised that the Coalition planes commenced an air attack against the Baghdad International Airport, as it was unjustified under the “assumption of its potential value for Iraqi military aviation: as it was impossible for this force to use military airfields” and under the denial of escape of the

¹¹ Personal information’s from the author (Professor Sotula), who was in Cherson in February–March 2022.

Iraqi leadership (Bartolini 2006, 239). Most of the known publications on this subject highlight that airfields are by nature lawful military targets. However, Y. Dinstein only relates it to “military airfields” (Dinstein, 2002, 147). Van Boogaard underlines that purely civilian airfields are targetable only if there is credible intelligence indicating that the military is intending to use such a facility, especially after the military airstrip was hit (Van Boogaard 2023, 164). But there is another possibility. It must be emphasised that in many cases, air bases are located close to international airports. In such circumstances, the air base uses the same sets of taxiways and highways as the airport uses for commercial operations, which is a pure example of a dual-use facility. The example of such an airport is the Kherson International Airport, which is also home to the Ukrainian Air Force detachment. While usually the buildings and objects of a military air base are clearly separated from the buildings of commercial aviation, the runway and the taxiways are used both for combat aviation and civil aircraft. Under Art. 52(2) of the AP I, only military airfields are military objectives by “nature”, while the civilian airport classification depends on the actual “use” or “purpose” of the facility. If the taxiways, runways, repair shops, fuel supply stations are used or are intended to be used for military purposes, they become a lawful military objective (Dahl 2016, 10). W.H. Parks highlighted that airports are potentially very useful in accommodating military aircraft, and thus “an airport is a legitimate target if it meets the definitional test for a military objective, even if also employed for civilian use” (Parks 2007, 105). More ambiguous is the status of the main building of a commercial airport: usually such infrastructure is not used by the military. Unless the building changes its purpose (becomes a staging point for troops, area of military concentration), it should be immune to attacks, and damage to it should be avoided. Of course, the corresponding location of the objective is also important: if the terminal is located so close to the military infrastructure that it is unable to physically be spared, it will become unavoidable collateral damage, subject to estimation during the assessment of the proportionality rule. G. Solis interestingly observed that the civilian airports which share their infrastructure with an air force base are military objectives by “location”, and the whole area is subject to lawful attack during conflict (Solis 2010, 525).

5. THE HOSTOMEL AIRFIELD AND AN-225

The Hostomel airfield is home to the Antonov company, a Ukrainian-state owned air manufacturer, famous for building large cargo planes (Miller 2023, 265). The airport was not host to any elements of the Ukrainian Air Force. However, it is believed that due to close proximity of the airport to the Ukrainian capital Kiev and its long runways, the Hostomel airfield was labelled a strategic target for the Russian armed forces. The initial plan was to seize the airfield through air assault

of the VDV units (Russian Air Assault), which was actually successful at first: the Russian paratroopers captured the airport without significant resistance from the Ukrainian military, aiming to establish an airlift in order to bring reinforcements and quickly redeploy towards the Ukrainian capital. The “decapitation strike” against the Ukrainian leadership failed, as the Ukrainian reserves responded and contained the first wave of attackers, denying access to the runway (Collins, Kofman, Spencer 2023).¹² The first battle of Hostomel was over; however, the battle reignited while the VDV units linked up with the incoming forces of Russian ground troops marching from Belarus.

At the time of the VDV assault, the biggest transportation plane in the world – Antonov An-225 – was parked in the hangar, as the aircraft was considered non-operational due to ongoing repairs. After the failed operation of February 24th, 2022, the area of the airport became a place of contested battlefield, as the Russians were trying to establish a forward operating base at the Hostomel Airport, while the Ukrainian forces fiercely resisted. It is believed that during those clashes, the hangar containing the An-225 was hit and the plane was destroyed. It is unknown which party to the conflict was responsible for the destruction, as the airport zone was an area of heavy fighting. The destruction occurred after February 24th, 2022.¹³

The destruction of the aircraft raises questions concerning the legality of the act. The An-225 was not a military aircraft but a cargo one, owned and operated by a private company. The main feature of the plane was the unprecedented capabilities of heavy lifting. On the other hand, the An-225 could be quickly utilised for military purposes such as troop transportation, vehicle shipment or supply missions, and in the past the aircraft was involved in such activities (e.g. the delivery of the Iron Dome equipment for Israel air defence in August 2020).¹⁴ The definition of the military objective requires that objectives by “nature”, “location”, “use” or “purpose” must provide a “contribution” to military activity and their neutralisation (destruction) need to offer a “definitive military advantage.” The practice of the states signals that labelling a military objective by nature classifies it immediately as a lawful military

¹² “The battle for Hostomel Airport was the first major battle of the Russo-Ukrainian War (2022–present) and a decisive event in the war. This battle started on the morning of February 24 and lasted less than 36 hours. In the opening hours of the Russo-Ukrainian war Russian forces sought to seize a key airfield just 12 miles from the capital’s center. Additional airborne battalions would follow on transport planes. They would rapidly deploy, seek to take control of the city, and overthrow the government or make the leadership flee. Russia ultimately gained control of the airport but failed to achieve the objective of the assault” (Collins, Kofman, Spencer 2023).

¹³ Footage from the Russian paratroopers filmed on February 24th, 2022, indicated that the aircraft was not destroyed during the initial air assault.

¹⁴ <https://www.timesofisrael.com/the-antonov-worlds-largest-plane-lands-at-ben-gurion-airport/>

objective (ILA 2017, 329).¹⁵ However, as it was already highlighted, obsolete tanks, airplanes or other military equipment located in junk yards or as a historic display do not “contribute to the military activity” at all, and their destruction is unlawful (Crawford, Pert 2020, 170). As we said, the An-225 was not a military objective by “nature” but, rather, the potential ability of the aircraft to lift heavy military hardware classifies the An-225 as a military objective by “purpose.” Yet, one cannot forget that the An-225 during the whole duration of the battle of Hostomel (until the feral day of destruction) was immobilised due to a technical malfunction (the aircraft was awaiting an engine swap).¹⁶ We could accept that the An-225 was a military target by “purpose”, although we are not convinced whether the aircraft at the time of the attack contributed to the military activity. In our opinion, what needs to be also considered is that the plane was located in a area of fighting, and the ability to perform maintenance works or even fly from Hostomel was extraordinarily limited due to constant shelling of the runways. In fact, the Hostomel Airport, during the whole period of the Russian presence in the Kiev region since February 24th, 2022, was excluded from its primary function, so any aerial asset located within limits was virtually immobilised. This is also relevant in the light of the possibility that the aircraft was destroyed either by the Ukrainian or Russian military.

However, if we accept that the Ukrainian military bears responsibility for the attack, there is another possibility to justify the destruction of the aircraft. As it was highlighted multiple times above, the Hostomel Airport became an area of fierce combat, as the Ukrainian forces clashed with Russian paratroopers in a high-intensity battle for control over the airstrip. The stakes of the fighting were very high, especially given the strategic value of Hostomel in the Russian advance towards Kiev. Art. 52(2) indicates that “location” might be a precondition to classify a certain object or land/area as a military objective. This, however, cannot be understood as a blanket authorisation of the “area bombing” style operations, which are explicitly prohibited under art. 51(5)(a) of the AP I (ILA 2017, 8). The classical requirements of precaution and proportionality are applicable in the case of such an event, but it cannot be overlooked that the value of the area, the density of the combat operations, and the large number of military objectives by nature (combatants, armoured vehicles) made the Hostomel area a high value target itself.

¹⁵ “For example, a weapon system or a missile launching site are objects that make an effective contribution to military action by their very nature. It is not only a question of use because the qualification of military objective by nature may remain even if the object is not actually used at the time of the attack (a military plane in a hangar remains a military objective)” (ILA 2017).

¹⁶ “According to the director of Antonov Airlines, one of the engines was dismantled for repairs and the plane wasn’t able to take off that day, although the appropriate commands were given” (Guy 2022).

6. ATTACKS AGAINST TV STATIONS

Russian aviation additionally targeted the TV tower stations in Kiev (March 1st, 2022) and Kharkiv (March 6th, 2022). In the context of TV stations attacks, there has been a historically extensive IHL discussion since the famous NATO strike against the RVS station in Belgrade, Serbia, in 1999. The case itself gave rise to the famous ECtHR ruling *Bankovic*, in which the ECtHR ruled against the extraterritorial applicability of the ECHR in cases of aerial operations. However, the IHL perspective on attacking the broadcast stations and TV towers was analysed in detail by the *ad hoc* expert panel established under the auspices of the Office of the Prosecutor of the International Criminal Tribunal for Former Yugoslavia (ICTY).¹⁷ Article 8(1)(a) of the Hague Convention for Protection of Cultural Property in the Event of Armed Conflict lists a “broadcasting station” as a military objective.¹⁸ In 1956, the ICRC proposal “Draft Rules for the Limitation of Dangers incurred by the Civilian Population in Time of War” contained an annex which labelled TV/radio tower stations as a lawful military objective due to their “military importance” (Sassoli, Cameron 2006, 40). However, those facilities are no longer “considered as military objectives by nature” (although some NATO commanders in 1999 considered that the media as a propaganda tool is a legitimate target) (Dinstein, Dahl 2020, 72; Sassoli 2003, 4). It is believed that the “use” of those objectives will have the priority in assessing the legality of the attacks directed against it.

In the conditions of modern society, TV stations potentially fall into the category of “dual-use” objects, with both military and civilian applications.¹⁹ Moreover, TV/radio stations are also used for expanding and enhancing the circular connection, which was widely used for tactical intelligence, especially in the early period of the conflict, even by non-combatants. This dilemma does not address the question of whether the end-users of the circular connection directly participate in hostilities, although, as K. Macak mentions, such a possibility cannot be excluded (Macak 2023, 978). In fact, the possibility of relaying the data of military character by 5G or the LTE devices would render this type of

¹⁷ Final Report to the Prosecutor by the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia.

¹⁸ “Are situated at an adequate distance from any large industrial center or from any important military objective constituting a vulnerable point, such as, for example, an aerodrome, broadcasting station, establishment engaged upon work of national defense, a port or railway station of relative importance or a main line of communication” *Convention for the Protection of Cultural Property in the Event of Armed Conflict*; Adopted May 14, 1954, Entered into Force August 7, 1956.

¹⁹ *But see Investigation regarding the attack against Kyiv TV tower on March 1, 2022* “There is no evidence to indicate that the damaged TV tower and adjoining technical buildings were being used for any military objectives. In its assessment of the attack, ECCHR confirmed that the TV tower was neither a military object nor a dual-use object, meaning that there was no lawful basis for the Russians to target it.” <https://investigations.support/case/8c787441-2942-41e4-81d1-da436c854f52>

infrastructure a lawful military objective. In the law of air warfare, it is widely understood that every enemy aircraft could potentially be classified as a military objective if it is “being incorporated into or assisting the enemy’s intelligence gathering system, e.g., engaging in reconnaissance, early warning, surveillance or command, control and communications missions” (HPCR 2009, 14). In consequence, when serving as a platform or in passing the information of military character, the TV tower is subject to attack (OSCE, 2022, 27; ICTY, para. 79).

On March 3rd, 2023, the Ukrainian court sentenced a Russian pilot who had bombed the Kharkiv TV tower using 8 FAB-500 bombs to 12 years. The defendant was found guilty of violations of laws and customs under the Ukrainian criminal code. The authors of the article have no further knowledge or data concerning the details of the case, although the indictment could be based on controversial grounds for the reasons mentioned above.

7. ATTACKS AGAINST URBAN AREAS AND THE USE OF THE UNGUIDED WEAPONS AND WIDE-BLAST RADIUS WEAPONS

When the Russian offensive stalled due to the stiff Ukrainian resistance, the urban areas became an area of intense fighting and shelling. The most affected regions were the area of Kharkiv, numerous towns in the Kiev region, as well the Chernigov and Sumy regions. A full siege had been established around the city of Mariupol. During those battles, the Russian military extensively used close air support aircraft. One of the most shocking incidents was the bombardment of the Dramatic Theatre in Mariupol on March 16th, 2022, and the air strike against maternity hospital on March 9th, 2022. The Russian military offered mixed justification for the bombings: from “staged” Ukrainian false flag operations to claims that the attack was directed against a lawful military objective. Neither of those reasons seems to be reasonable, which is even more apparent in the context of the attack against the Dramatic Theatre in Mariupol, an isolated building in the city centre (Polygraph.info 2022). The attacks were most likely conducted deliberately, making them an example of intentional bombardment of civilian objects, which is a flagrant violation of the principle of distinction and a war crime. Many videos and photographs from March–April 2022 recorded in various places in Ukraine show the extensive damage to the residential areas due to the use of heavy aerial bombs of unguided character.²⁰ This evidence is substantial enough to question whether the Russian aviation targeted the military objectives in the first place, not to mention the proportionality rule and necessity to exercise due care in

²⁰ Sumy: https://twitter.com/nexa_tv/status/1501380110397710339 (accessed: 14.12.2023); Czenihov: <https://www.youtube.com/watch?v=VWAFNkk-3qg> (accessed: 14.12.2023); Okhtyrka: <https://twitter.com/i/status/1496888155936792576> (accessed: 14.12.2023).

air operations, according to the precaution's principle (OHCHR 2022).²¹ According to N. Hayashi, failure to verify the accuracy of the targeting data is a contravention of the reasonable commander standard formulated in the "Rendulic rule".²² While one cannot simply assess the legality of the attack based solely on the *post factum* perspective, there is enough room to doubt the justification provided by the Russian military.

Despite the notable campaign led by the ICRC to at least mitigate the use of wide-area explosives in urban areas, international humanitarian law as it stands does not prohibit either the use of the heavy aerial bombs or unguided missiles and bombs (ICRC 2022). In the past, there was an intense academic discussion about to what extent the customary law required the use of precision-guided munition, but with a rather negative conclusion due to the unclear *opinio iuris* of the states (Piątkowski 2021, 612). Moreover, the Russian-Ukrainian war highlighted the inadequacies and limitations of the arms inventory: in high intensity conflict of symmetric character, there is a significant risk of depleting the reserves of precision weaponry and it is likely that the states in emergency will turn to unguided solutions in this regard. However, it cannot be denied that the tactic involving the use of unguided weapons with great consequences in most cases will be tantamount to carrying out prohibited indiscriminate attacks. The use of the wide-area aerial bombs in urban areas could be described as the following: the greater the payload, the greater the level of care that should be exercised in planning and executing an attack against a military objective (Brehm 2012, 139).²³ The authors of the article do not mean to imply that in all circumstances such a tactic would be unlawful (modern aircraft are equipped with ballistic computers such as CCRP – *Continuously Computed Release Point*). Nevertheless, it is very difficult to imagine that the aerial bombardment of infantry units or armoured

²¹ "OHCHR is concerned that, Russian armed forces have engaged broad use of explosive weapons with a wide area effect in populated areas, including shelling from heavy artillery and MLRS, and missile and air strikes. Most civilian casualties and damage to civilian objects recorded by HRMMU were caused by the use of such weapons. Ukrainian armed forces have also engaged in shelling of populated areas in territory controlled by Russian affiliated armed groups." United Nations Office of the High Commissioner, *Ukraine, date on the human rights situation in Ukraine Reporting period: 24 February – 26 March, 2022* para. 8.

²² "The reasonable commander test becomes important in areas where IHL grants commanders a degree of discretion. Examples include military necessity – such as the case in Hostage – as well as precaution and proportionality in attacks. Actively seeking and verifying information about the status of a target and incidental civilian harm form integral parts of precautionary measures codified in Article 57 of Additional Protocol I. If attackers err in their decisions because of a failure to check the accuracy of available information, they act unreasonably and in bad faith (Hayashi 2023).

²³ "Launching an attack without any effort to direct it at a military objective is undisputedly in violation of IHL, but this leaves unaddressed the rather more pertinent question of what effort would be required under IHL for an attack with unguided bombs, in an area inhabited by civilians, to comply with IHL" (Brehm 2012).

vehicles in densely-populated residential areas, conducted unguided and with heavy aerial bombs would be accurate enough not to be labelled as indiscriminate and contained enough not to be described as disproportionate (ICRC 2022, 84).²⁴ The International Institute of Humanitarian Law in its Rules of Engagement Handbook pointed out in rule 100C that model ROE (Rules of Engagement) in the context of the air operations in urban areas should not involve the use of non-precision guided weapons.²⁵ The associated risk of wide-blast heavy aerial bombs such as FAB-500 in many circumstances cannot be counterweighted by the “direct military advantage.” The authors agree with the OSCE’s report findings that in many circumstances the Russian aerial command acted in total disregard of the principle of precaution (which itself is not a war crime) (OSCE 2022, 41).²⁶

On some occasions, the aircraft of both sides (Russian and Ukrainian) performed attacks using the ballistics of unguided missiles to imitate the “aerial” version of the rocket land artillery. The characteristic element is the extraordinary short targeting time, down to a few seconds, due to the danger arising from the anti-aerial systems, e.g. SAM or MANPADS. Such blind bombardment conducted against military objectives in urban areas would be labelled as an indiscriminate method, as it is virtually impossible for the crew to make the necessary target assessment.²⁷

8. ATTACKS ON UKRAINE’S ENERGY INFRASTRUCTURE

One of the strategic directions of the Russian military aggression has been air strikes against civilian energy infrastructure in Ukraine. By September–October 2022, due to the inability to show military results at the front, the military and

²⁴ “When used against targets located in populated areas, there is generally a high risk that they will strike civilians and civilian objects as well as the military objectives, without distinction” (ICRC 2022).

²⁵ “Use of non-precision air to surface munitions in (SPECIFY areas) is prohibited” (International Institute of Humanitarian Law 2009).

²⁶ “The Mission cannot believe (assuming that military objectives were targeted; otherwise, the use of any weapon was unlawful) that the extent of civilian deaths, injuries and destruction that had to be expected due to the proven wide area effect of those munitions and their use in densely populated areas, was in each case not excessive compared with the military advantage anticipated” (OSCE 2022, 42).

²⁷ See the comment of deployment of rocket artillery in urban areas: “The Fact-Finding Mission concludes that during the offensive on Tskhinvali the shelling in general, and the use of GRAD MLRS as an area weapon in particular, amount to indiscriminate attacks by Georgian forces, owing to the characteristics of the weaponry and its use in a populated area. Furthermore, the Georgian forces failed to comply with the obligation to take all feasible precautions in the choice of means and methods of warfare with a view to avoiding, and in any event to minimising, incidental loss of civilian life, injury to civilians and damage to civilian objects” (Independent International Fact-Finding Mission on the Conflict in Georgia 2009, 340).

political leadership of the Russian Federation came to the conclusion that it was necessary to cause significant damage to the Ukrainian civilian infrastructure. The purpose of the air strikes was to weaken the economy of Ukraine as well as to terrorise the Ukrainian population, which, according to the Russian rulers, as a result of the energy collapse, should have protested against the Ukrainian leadership.

The chronology of events is as follows. Following the significant success of the Ukrainian Armed Forces in the Kharkiv and Kherson regions, the Russian armed forces began launching numerous attacks on the Ukrainian energy infrastructure. In September, the second largest thermal power plant in the country, Kharkiv CHPP-5 (Ritter, Arhirova 2022), as well as the South Ukrainian Nuclear Power Plant in the Mykolaiv region were attacked (Clinton 2022). In October, the number of attacks increased significantly. Nine waves (at least) of large-scale air strikes were aimed specifically at the energy infrastructure of Ukraine (The Economist 2022). Each such wave consisted of 70–100 missiles of various classes (including cruise missiles) or drones, which were fired over several hours. By the end of November, about 40% of Ukraine’s energy infrastructure was significantly damaged (President of Ukraine 2022). According to Ukrainian authorities, not a single thermal or hydroelectric power station in the country remained undamaged (Gibbons-Neff, Santora 2022). Russian air strikes have caused widespread blackouts of electricity, water, and heating, which are especially dangerous for the population in winter conditions. As a consequence, access to sanitation, food, health care, and education was limited.²⁸ These attacks affected millions of people, and hundreds of civilians were killed and injured as a result of Russian air attacks on infrastructure.

On December 8th, 2022, the President of the Russian Federation, Vladimir Putin, publicly stated that numerous attacks deliberately targeted Ukraine’s energy infrastructure. In his words, “At the proposal of the Ministry of Defence and in accordance with the plan of the Russian General Staff, a massive strike was launched with high-precision long-range weapons from the air, sea and land against Ukrainian energy, military and communication facilities” (Haltiwanger 2022). On December 10th, the Russian military, using kamikaze drones, launched an air strike on the Odessa power grid, leaving one and a half million people without electricity for an extended period (Starkov 2022).

The United Nations’ independent International Commission of Inquiry into abuses in Ukraine has identified four types of weapons whose use in populated areas has led to indiscriminate attacks. These are unguided bombs dropped from aircraft; long-range anti-ship missiles of the Kh-22 or Kh-32 type, which turn out to be inaccurate when hitting ground targets; cluster munitions, which by definition disperse small submunitions over a large area; and multiple launch

²⁸ Independent International Commission of Inquiry on Ukraine. A/HRC/52/62.

rocket systems that cover a wide area with unguided missiles.²⁹ Based on the above facts, the International Commission found that attacks on energy infrastructure since October 10th, 2022, have been widespread and systematic. Their goal was to disable the entire country's energy system, with expected consequences for the heating system. International humanitarian law expressly prohibits damage to and destruction of objects essential to the survival of a civilian population "with the express purpose of depriving them of their means of subsistence." It should also be accepted by the Commission's findings that these attacks by Russian armed forces were disproportionate and that they constituted a war crime of excessive incidental death, injury, or damage (AP I, Articles 51(4)-(5), 57(2)(a)(iii)-(b) (prohibition of indiscriminate attacks), and 85(3)(b)-(5) (war crime of causing excessive accidental death, injury, or damage). The attacks were widespread and systematic, and may constitute a crime against humanity or other inhumane acts.

Commenting on the findings of the Commission, it must be underlined that in the past, the energy grid of the adversary was a target in previous aerial campaigns. During World War II, the Allied aviation bombarded the Third Reich power stations (especially during Operation Chastise), but it was not labelled as a priority target. After 1945, it became standard to consider the energy system of the enemy an objective in order to halt the arms production and shut the flow of power to increasingly energy-dependent sophisticated weapons systems. At some point, the civilian usage of the energy vastly surpassed the military applications, and with the progress of civilisation, modern societies are energy dependent on an unprecedented scale. Targeting power plants began to create widespread and severe consequences for the civilian population, even if the subsequent effects were clearly tangible in terms of military advantage, as the energy flow to command centres, SAM sites, or radar placements was interrupted or shut down. The best example is Iraq in 1991, when the destruction of the Iraqi power grid gave a clear advantage to the Coalition forces, while causing a humanitarian crisis. During the NATO bombardment of Serbia in 1999, NATO targeted the Serbian power plants and substations; however, they focused on temporary interruption of their operations by deploying the graphite bombs rather than on physical elimination (Lambeth 2001, 42). Power plants operating exclusively for civilian purposes are not a military objective. The elements of the power grid operating both for military and civilian purposes are "dual-use" targets, which are subject to the examinations and assessments and the proportionality rule (Byron 2010, 183). In Ukraine, power plants not only deliver electricity to households, but also heat. As pointed out by M. Schmitt, the denial of heat exposes civilian population to sickness, which is an essential part of civilian harm to be comprehended as

²⁹ Report of the Independent International Commission of Inquiry on Ukraine, A/HRC/52/62, https://www.ohchr.org/sites/default/files/documents/hrbodies/hrcouncil/coiukraine/A_HRC_52_62_UA.pdf

required by Article 51(5)(b) of AP I.³⁰ Moreover, the principle of precautions asks commanders to use the means and methods of attack eliminating or minimising the risks to the civilian population; under this logic, the attacks should focus on targeting substations or power lines rather than the energy production centres (e.g. power plants).

On 5 March 2024, the Pre-Trial Chamber II of the ICC at the request of the Prosecutor issued two arrest warrants³¹ for commander of the long-range aviation of the Russian Air Forces and the chief of the Black Fleet for attacks against Ukrainian power grid in winter 2022. After analyzing the data submitted by the Prosecutor, ICC found that those strikes were either directed against civilian objects or have clearly excessive disproportionate effects. However, whether the case would be examined by the ICC in trial depends on the availability of the suspects (Article 63 of the ICC Statute bars trials *in absentia*).

9. THE UKRAINIAN AIR FORCE'S ACTIVITIES

In the first weeks of the conflict, the Ukrainian Air Forces were acting in defence operations, especially defensive counterair activities aimed to deny the Russian Air Force the opportunity to regain air superiority over Ukraine. During the second stage of the conflict, the Ukrainian close support aircraft, especially Su-25s, were involved in separate combat missions (Trendafilovski 2022). Many of those missions were carried out in low altitudes, facing significant presence of the Russian air defence assets and aircraft, and forcing the crews to lower the accuracy of the bombardment (see the “blind bombardment” aspect highlighted above). Due to the limited strike capabilities, the Ukrainian Air Forces performed a small number of strategic sorties, although the situation changed with the delivery of the Storm Shadow and SCALP missile from the West, which are believed to be responsible for inflicting significant damage to the Russian military infrastructure in the Crimea peninsula (Axe 2023). The targets such as the Command of the Black Fleet and Black Fleet warships are lawful military targets.

³⁰ “‘Injuries’ include sickness, as in the case of that caused by water contamination or hunger due to loss of power. With winter approaching, any loss of heating could prove dangerous for the Ukrainian population; foreseeable harm to them would also qualify for the purposes of the rule” (Schmitt 2022).

³¹ Situation in Ukraine: ICC judges issue arrest warrants against Sergei Ivanovich Kobylash and Viktor Nikolayevich Sokolov, <https://www.icc-cpi.int/news/situation-ukraine-icc-judges-issue-arrest-warrants-against-sergei-ivanovich-kobylash-and>

10. CONCLUSIONS

International humanitarian law defines the rules governing the conduct of parties to a conflict in order to protect civilians and reduce suffering during hostilities. It also establishes restrictions and prohibitions on the use of certain weapons and tactics. Air warfare is a form of military operations that involves the use of air power to achieve military goals. This may include bombing, air support, reconnaissance, and other airborne activities. Humanitarian law also applies to military action in the air to protect civilians and minimise suffering. For example, it sets rules for the use of air attacks to avoid disproportionate damage to civilian objects and civilian casualties.

The initial Russian airstrikes were directed, at large, against military objectives. However, according to the authors, the legal status of some Ukrainian Air Force aircraft attacked by the Russian Air Force and standing on runways throughout Ukraine is problematic. At the time of the attack, they were obsolete, damaged, or in poor technical condition, and it seems difficult to accept that these aircraft “contributed to combat” and had real military value. The same applies to the status of the An-225 “Mriya” aircraft destroyed at the Gostomel airfield. However, we cannot deny that in prolonged conflict, even obsolete and damaged airframes have some military potential (through the refurbishment).

As the war progressed, the application of air power by the Russian Air Force became much more brutal. The experience and analysis of the course of later stages of Russian aggression in 2022–2023 have shown that the conduct of the Russian Federation Air Forces in many cases, with great likelihood, contravene the requirement of the law of air warfare, especially the law of the air bombardment. Active search and verification of information about the status of the target and incidental damage to the civilian population are an integral part of the precautionary measures provided for by international legal acts. Omission of such actions could render the act of air bombardment illegal due to the violation of the distinction principle or proportionality rule (for example, when using heavy, high-power bombs such as the FAB-500 in urban areas without any necessary due process in targeting). However, any firm conclusions are impossible to be formulated, without full knowledge of the circumstances surrounding individual decisions (*ante factum*) behind the attacks.

In October 2022, due to the inability to show combat results at the front, the military and political leadership of Russia concluded that it was necessary to inflict significant damage to the Ukrainian civilian energy system through air and missile strikes. The purpose of those actions likely violates the principle of military necessity, as the widespread attacks against the Ukrainian power grid served an abstract and dubious political goal (undermining the morale of

the Ukrainian population) rather than fostering a concrete and specific military advantage.

It is inevitable that the authorities prosecuting for war crimes in the context of the “Law of the Hague”, both at the international and national levels, will face a large spectrum of legal dilemmas, involving the necessity to overcome the challenges arising from ambiguities in the practical applications of the principle of distinction, precaution, and proportionality rule in the context of aerial operations occurring in symmetric and full-scale conflicts.

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