

ARTIGO | *PAPER*

## **DISPUTED REMAINS: FORENSIC ANTHROPOLOGY AND POLAND'S TRAUMATIC PAST**

OSSADAS CONTESTADAS: ANTROPOLOGIA FORENSE E O  
PASSADO TRAUMÁTICO DA POLÔNIA

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**ABSTRACT**

Poland's recent history has been profoundly marked by multiple traumatic events, including the First and Second World Wars, the atrocities of Nazi concentration camps, and the massacres at Katyń, Wołyń, and Jedwabne. These events, along with the tortures and executions under the Communist regime, represent some of the most widely recognized yet not exhaustive examples of severe human rights violations that occurred on Polish soil. Forensic archaeology and anthropology have emerged as crucial tools in understanding such events, uncovering the identities of victims, and ultimately promoting historical justice. Forensic anthropology, through the analysis of human remains, enables the identification of victims and the reconstruction of events leading to their deaths. By doing so, it helps to uncover the truth about historical atrocities and provides a sense of closure to the families of victims. This article provides a comprehensive overview of selected events and explores the application of forensic anthropology in investigating Poland's traumatic past. Moreover, we critically examine the applicability of forensic anthropology in a historical context and its social and political challenges. The field faces several challenges, including the need for interdisciplinary collaboration, ethical considerations, and the potential for political and social resistance to the findings. Despite these challenges, forensic anthropology remains a vital discipline in the quest for historical justice and the acknowledgment of past atrocities.

**KEYWORDS**

forensic anthropology and archaeology, historical justice, places of trauma, Poland, human rights violation

**RESUMO**

A história recente da Polônia foi profundamente marcada por uma série de eventos traumáticos, incluindo a Primeira e a Segunda Guerras Mundiais, as atrocidades cometidas nos campos de concentração nazistas e os massacres de Katyń, Wołyń e Jedwabne. Esses episódios, somados às torturas e execuções perpetradas durante o regime comunista, representam exemplos amplamente reconhecidos, ainda que não exaustivos, de graves violações dos direitos humanos em território polonês. Nesse contexto, a arqueologia e a antropologia forense emergem como instrumentos fundamentais para a reconstrução dos acontecimentos históricos, a identificação de vítimas e a promoção da justiça histórica. Através da análise de restos humanos, a antropologia forense permite elucidar as circunstâncias das mortes e restituir identidades, contribuindo para o esclarecimento de atrocidades passadas e oferecendo um senso de encerramento às famílias das vítimas. Este artigo apresenta uma análise abrangente de eventos selecionados e examina criticamente a aplicação da antropologia forense na investigação do passado traumático da Polônia. Além disso, discute os desafios sociais, políticos e éticos enfrentados pelo campo, destacando a necessidade de colaboração interdisciplinar e o potencial de resistência política e social às descobertas. Apesar desses obstáculos, a antropologia forense permanece como uma disciplina essencial na busca pela justiça histórica e pelo reconhecimento de crimes e violações cometidos no passado.

**Palavras-chave**

antropologia e arqueologia forense, justiça histórica, lugares traumáticos, Polónia, violações dos direitos humanos

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## Introduction

When discussing places of trauma, defined as historical locations marked by violence and calamity, including acts of torture, murder(s), genocide, and environmental catastrophes, Poland emerges as a profoundly pertinent example. The historical trajectory of Poland has been indelibly shaped by traumatic events, including 123 years of Partitions, the devastations of both World Wars, the existence of Nazi concentration camps, numerous incidents of mass executions with genocidal attributes (e.g., Katyń, Jedwabne, Wołyń), and the oppression under the Communist regime, among many other instances. A substantial body of literature exists that provides comprehensive analysis of each of these events. It is not our intention to address or reinterpret their significance or the prevailing narratives. As forensic anthropologists, we will focus on providing an account on the role of forensic anthropology and archaeology in the documentation, analysis, and interpretation of human remains in such contexts as a means to elucidate historical moments, verify the identities of victims, and aid in reconstructing the course of events.

Forensic anthropology and archaeology are closely related disciplines that complement each other applying traditional anthropological and archaeological methodologies within a legal context (MORAN, 2019). Investigations into potential criminal activities, including crimes against humanity, slightly differ from (pre)historical archaeological excavations and analyses of historical burials and human remains. The primary distinction lies in the evidentiary potential of the results in forensic cases (CROSSLAND, 2013). Consequently, despite the existence of clear and unambiguous work protocols, maintaining the chain of custody is a critical attribute in the forensic application of both disciplines (DAMASCENA et al., 2022). The level of responsibility comes as a second fundamental difference, as in forensic context evidence gathered, and testimony/reports provided by forensic anthropologist and archaeologists can be a key element to the judicial verdict (GÓRKA, 2025).

In Poland, forensic anthropology and archaeology are relatively niche disciplines and have only recently begun to be formally integrated into criminal investigations (MAZUR & GÓRKA, 2021). It is beyond doubt that, in many instances, the application of forensic anthropology and archaeological methodologies has facilitated the understanding of events, the identification of victims, and the provision of an evidence-based context for crime interpretation. With respect to historical crimes in Poland, such as burials from the First or Second World War, which possess the potential to be classified as crimes against humanity, it remains unclear whether rigorous forensic methodologies have always been applied (PERSAK, 2010). The severely limited probability of identifying and prosecuting the perpetrators confers upon these sites a predominantly historical, rather than clearly forensic, character. Nevertheless, due to the often-mass nature of such burials and the associated socio-political context of the crimes, we will continue to use the term "forensic" concerning the employment of anthropological and archaeological methods in such cases.

As both, forensic anthropology and archaeology remain particularly invisible in the Polish academia, to give visibility and bring attention to the importance and usefulness of their appli-

cation, the primary objective of this article is to provide an account of the use of forensic anthropology and archaeology in relation to selected Polish historical sites of trauma and human rights violations. We will briefly contextualize each case and elucidate the importance of employing these methods in the analysis and interpretation of such crimes. Furthermore, we will also critically address the socio-political context of such investigations and demonstrate how it may impact their application.

### **Forensic anthropology and human rights**

The atrocities committed during the Second World War underscored the necessity of establishing an international framework for the protection of human rights (DEATON, 2011). In December 1948, the United Nations adopted the Universal Declaration of Human Rights, which serves as a foundational document outlining the fundamental and inalienable rights of individuals across civil, political, economic, social, and cultural spheres (UN, n.d.). Poland has a longstanding tradition of engagement with human rights discourse. The Polish Constitution of 1791, recognized as the first in Europe and the second globally (BUTTERWICK, 2021), enshrined several fundamental rights, including dignity, life, property, freedom of speech, freedom of the press, and freedom of religion. However, the constitution retained the rigid social class system, which determined the scope of rights and privileges afforded to individuals of each class (BUTTERWICK, 2021). Despite these limitations, the constitutional framework acknowledged each individual's role within the nation and granted certain legal protections. Over time, Poland's commitment to human rights evolved alongside its sociopolitical development. In pursuit of membership in the European Council in 1991, Poland was required to formally adopt the UN Declaration of Human Rights. Subsequently, on January 19, 1993, the Polish Parliament ratified the Declaration, bringing it into force (MAMIŃSKI, 2020). Nevertheless, Poland's complex historical trajectory positioned it as a European nexus where human rights violations strongly intersect with the field of forensic anthropology.

To fully grasp this context, it is essential to examine Poland's historical background. Poland's cultural and political history has been profoundly shaped by its geographical position at the crossroads of Eastern and Western Europe, a dynamic that has persisted for hundreds of years. (PERDAŁ, 2022; THANNHÄUSER et al., 2021). This strategic location exposed the Polish people to extended periods of hardship, driven by the competing geopolitical ambitions and territorial pressures of neighboring powers, particularly Germany and Russia, which resulted in recurrent military invasions. Most notably, the Russian Empire, the Kingdom of Prussia, and Austria orchestrated three successive Partitions of Poland between 1795 and 1918, leading to the dissolution of the Polish state and its removal from the political map of Europe for 123 years (PERDAŁ, 2022). Despite regaining independence in 1918, Poland was once again subjected to foreign invasion in 1939, when Nazi Germany invaded, followed shortly by the Soviet Union. Throughout the 20th century, Poland's geopolitical significance rendered it a focal point of military aggression, totali-

tarian regimes, and widespread atrocities. As a result, Polish territory became deeply entangled with some of the most traumatic episodes of modern history, bearing the scars of mass violence and functioning as a vast graveyard for soldiers from opposing armies as well as civilians of diverse ethnic and cultural backgrounds who suffered persecution and death (THANNHÄUSER et al., 2021).

### **A short glimpse of history**

On September 1st, 1939, the German Third Reich invaded Poland, marking the beginning of a devastating chapter in Polish history. The Defensive War of 1939 saw fierce resistance, but the simultaneous Soviet invasion later that month, enabled by the Ribbentrop-Molotov Pact, deepened Poland's plight. In September alone, around 66,000 Polish soldiers and 45,000 German troops were killed (IPN, 2025). The subsequent partitioning between Nazi Germany and the Soviet Union led to years of occupation, severe repression, and immense suffering.

Despite military defeat, Poland's underground resistance emerged, organizing extensive operations throughout the war. The Nazi occupation brought systematic persecution, mass executions, and efforts to erase Polish national identity (LEHNSTAEDT, 2020). Mass killings were perpetrated not only by Nazi forces but also by Soviet troops and, in the latter stages of the war, Ukrainian nationalist factions (PIOTROWSKI, 2007). Many victims remain in mass graves, some of which are still being uncovered today (THANNHÄUSER et al., 2021). The war cost Poland approximately six million lives, civilian and military, accounting for nearly 17% of its pre-war population (SZAROTA & MATERSKI, 2009; GRABOWSKI, 2018). Poland's wartime experience remains one of the most profound examples of resilience in the face of occupation and systematic genocide, with lasting effects on its historical and social landscape.

Approximately three million Polish Jews were murdered during the Holocaust—a systematic campaign of genocide orchestrated by the Nazi regime and executed primarily on occupied Polish territory (GRĄDZKA-REJAK, 2019). Extermination camps such as Auschwitz-Birkenau, Treblinka, Bełżec, Chełmno, Sobibór, and Majdanek were central to the machinery of mass murder. Auschwitz alone claimed over 1.1 million lives, the majority of whom were Jews, alongside Polish Catholics, Roma, Soviet prisoners of war, and others (ZIMMERMAN, 2004; PETTITT, 2021). These atrocities underscore the immense human cost of Nazi ideology and mark Poland as a principal site of some of the most heinous crimes against humanity of the 20th century.

Following World War II, Poland—like much of Eastern and Central Europe—was subsumed into the Soviet sphere of influence, becoming an integral part of the Eastern Bloc rather than regaining full political autonomy. The imposition of Soviet-aligned governance provoked widespread dissent, catalyzing resistance movements across the region (KSCHYK, 2015). In Poland, opposition groups persisted in contesting Soviet dominance through political advocacy and propaganda efforts. However, these actions were met with aggressive suppression by Soviet forces and an increasingly expansive domestic security apparatus, which sought to dismantle organized

dissent and consolidate control (MUSIAŁ, 2019; KONCZEWSKI, 2020). Numerous Polish resistance fighters were killed in executions after cruel interrogations and detention, in addition to direct clashes with occupying troops (THANNHÄUSER et al., 2021). Polish courts under Soviet control condemned thousands to death (SZLESZKOWSKI, 2016; MUSIAŁ, 2019). The relatives of executed victims were often denied the chance to grieve and remember them since they were frequently buried in clandestine locations (PIEKARUS & PIEKARZ, 2015). Estimates indicate that around 50,000 individuals died during this period, with nearly 8,000 deliberately executed following death sentences, reflecting the harsh strategies employed to suppress opposition and strengthen Soviet control (KAMIŃSKI, 2019; MUSIAŁ, 2019).

Research on post-war repressions was essentially forbidden before to Poland's democratic transition in 1989 (SZLESZKOWSKI, 2016; THANNHÄUSER, 2021). For instance, it wasn't until 2011 that the Institute of National Remembrance (IPN) began conducting extensive archaeological research, exhumations, and identification attempts of the atrocities committed by the Communist rule (SAWICKA, 2016). The remains of over 1,000 victims have now been discovered via thorough research at many locations, adding to historical memory initiatives and offering vital insights into the consequences of post-war repression (SZLESZKOWSKI et al., 2016; THANNHÄUSER et al., 2021).

The highlights of Poland's traumatic past underscore the complexity of Polish history as its undoubtful characterization as a place of trauma. Given these circumstances, human remains frequently become subjects of multidisciplinary inquiry, drawing interest from archaeologists, historians, anthropologists, forensic scientists, geneticists, as well as legal and academic institutions. While some discoveries occur by chance, the identification of hidden burial sites typically follows extensive archival and archaeological research spanning several years (SZWAGRZYK, 2016a).

Under Article 101 § 1 of the Polish Penal Code, the forensic context for criminal investigations is defined by a statute of limitations of 40 years (POLISH PENAL CODE, 1997). After this period, legal liability for crimes against life is generally time-barred, with a few exceptions including among others, cases involving crimes against peace, crimes against humanity, war crimes, and specific intentional offenses—such as murder, grievous bodily harm, serious injury, or deprivation of liberty combined with mistreatment by a public official in the course of duty (POLISH PENAL CODE, 1997). Given Poland's historical context, the majority of major human rights violations occurred decades ago, often between 70 to 100 years in the past or earlier. However, due to limitations on investigating these cases until recent years, ongoing research continues, though it now primarily adopts a historical rather than strictly forensic approach. The gradual uncovering of these cases reflects a broader effort to document and analyse Poland's complex, traumatic past through interdisciplinary investigation.

In the following parts, we will present the application of archaeological and anthropological methods in investigations related to selected Polish sites of trauma. Table 1 contains a compilation of selected investigations of mass burials associated with major atrocities of the 20<sup>th</sup>

century in Poland, focusing specifically on methodologies applied and major challenges encountered during fieldwork.

## **Katyń**

Katyń, a small village in western Russia near Smoleńsk, holds profound historical significance as a site of dual trauma for the Polish nation. In 1940, approximately 22,000 members of Poland's military and intellectual elite were executed by the Soviet Secret Police (NKVD) (BARTMANSKI & EYERMAN, 2015). The Katyń Massacre is considered one of the earliest instances of systematically orchestrated mass executions of prisoners of war during World War II and has been described as a "cold-blooded act of political violence" (FISCHER, 2008). This atrocity represents not only a national tragedy and historical injustice but also a profound cultural trauma (BARTMANSKI & EYERMAN, 2015). It is classified as a war crime, a crime against peace, and a crime against humanity (ECHR, 2013). Despite its devastating impact, the massacre has also become a symbol of resilience, courage, and the struggle for national sovereignty, particularly in the fight against Soviet oppression (OSIATYŃSKI, 2010; BARTMANSKI & EYERMAN, 2015).

The mass executions, carried out in early 1940 under direct orders from Stalin, saw Polish prisoners executed at Katyń and their bodies deposited in mass graves. In March 1943, members of the German 537th Signals Regiment discovered these graves, estimating that they contained approximately 10,000 Polish officers. On April 11, 1943, German authorities publicly accused the Soviet Union of perpetrating the crime (O'DONNELL, 2016). The Soviet government vehemently denied the allegations, initially dismissing the discovery as having archaeological significance before altering the narrative to claim that Polish prisoners had been executed by German forces in August 1941 (O'DONNELL, 2016). This dispute over responsibility persisted for decades until 1990, when the Russian press agency officially acknowledged the Soviet NKVD's role in the massacre (PERSAK, 2010).

O'Donnell (2016) provides a comprehensive account of the Nazi investigation into the Katyń burials, which marked one of the earliest international forensic inquiries into war crimes. Following the graves' discovery in April 1943, German authorities invited twelve forensic pathology experts, supervised by the Polish Red Cross, to conduct independent excavations, prepare a report, and determine responsibility for the killings. Despite the constraints imposed by wartime conditions, the experts operated autonomously and exhumed over 4,000 bodies from eight graves, identifying approximately 2,700 individuals (O'DONNELL, 2016). Forensic examinations revealed that all analysed victims exhibited bullet entry wounds at the base of the skull, consistent with summary execution methods. Additionally, many remains bore distinctive bayonet wounds, which were particularly significant given that that type of bayonet used was exclusive to the Soviet Army. Further analysis indicated that the victims were young and in good health, with no signs of preexisting trauma or illness. Determining the precise time of death proved challenging due to the varied preservation states of bodies, which ranged from mummification to saponification.

Given the interdisciplinary nature of mass grave investigations, dendrochronological analysis was employed to establish the timeframe of executions. Examinations of local pine trees revealed that they were five years old, with growth anomalies indicating they had been transplanted in early 1940, likely between March and April, by Soviet forces who were at that time occupying this region, attempting to conceal the crime (O'DONNELL, 2016). This evidence ultimately confirmed Soviet responsibility for the massacre. The forensic investigation concluded in June 1943, largely due to rising temperatures and waning German interest following the completion of official reports (O'DONNELL, 2016).

Upon retaking the area in September 1943, Soviet authorities launched their own inquiry in early 1944, ostensibly to prove German culpability. A specialized NKVD operational unit oversaw the exhumations conducted between January 16 and 23; however, harsh weather conditions, including extreme cold and frozen soil, severely limited progress. As a result, only 925 remains were recovered and analysed and a report blaming the Nazis was prepared (PERSAK, 2010).

Nearly five decades later, following Poland's political transformation and Russia's official admission of Soviet involvement, an interdisciplinary Polish team conducted a thorough investigation at Katyń between 1994 and 1995. As detailed by Persak (2010), researchers initially conducted extensive surveys to locate both primary and secondary burial sites, including those where remains examined in 1943 had been reburied. A total of 360 skeletons were excavated and analysed, while others were examined in situ. Approximately 78% of the remains exhibited bullet wounds at the base of the skull, confirming execution as the cause of death. For some individuals, damage to skeletal material prevented conclusive identification of such injuries. Many skeletons showed evidence of prior autopsy procedures, and positive identification was impossible in most cases. Archaeological surveys also uncovered original burial sites and artifacts discarded by German investigators in 1943, including personal belongings, military insignia (that confirmed the nationality of the victims), and approximately 200 Soviet-era projectiles (PERSAK, 2010).

Although the exact location of the executions remained uncertain and Polish researchers faced resistance from local authorities, their investigation successfully identified both primary and secondary burial sites. This research facilitated the establishment of the Polish War Cemetery at Katyń, providing a formal site for commemoration and historical recognition. Additionally, the inquiry broadened scholarly understanding of the crime's post-war history and the site's geopolitical significance (PERSAK, 2010). This underscores the critical role of archaeological and anthropological methodologies in investigating sites of historical trauma, reconstructing events, and verifying historical narratives.

The process of establishing the truth about the Katyń Massacre was heavily influenced by historical and geopolitical factors. The Soviet Union's prolonged denial of responsibility created enduring uncertainty for the Polish state, military, and victims' families. Western governments, particularly the United States and Great Britain, were initially reluctant to attribute blame to the USSR, fearing diplomatic repercussions. Any Polish efforts to question Soviet involvement were framed as pro-German treason (BARTMANSKI & EYERMAN, 2015). For decades, victims' families



were subjected to Soviet propaganda, which maintained the narrative of German culpability while actively suppressing independent research and dissemination of factual findings (ECHR, 2013). Establishing the historical truth required extensive forensic investigation, illustrating the complexities inherent in uncovering war crimes, crimes against humanity, and national traumas.

The German-led forensic investigation into the Katyń Massacre set a precedent for future international forensic inquiries into war crimes (HANSON, 2008). It was the first scientific, pathologist-driven inquiry into mass executions, shaping subsequent forensic methodologies (HAGLUND et al., 2001; TYERS, 2009). The ensuing dispute between Soviet and Nazi authorities further highlighted the significance of forensic evidence in legal and historical interpretations of wartime atrocities (O'DONNELL, 2016). The Nuremberg Trials represented the first and only instance where forensic evidence collected by both German and Soviet investigators was presented in the prosecution of Nazi officials (O'DONNELL, 2016).

Seventy years later, on April 10, 2010, tragedy struck again near Katyń when a plane carrying the Polish President, senior government officials, military commanders, and war veterans crashed en route to a commemorative ceremony marking the seventieth anniversary of the massacre. The disaster claimed the lives of all 96 passengers, including high-ranking state officials and members of the Katyń families. The Smolensk catastrophe deeply affected Poland, shaping political discourse, governance, and public sentiment while exacerbating political and social polarization (BILEWICZ et al., 2019). In this sense, Katyń has become a site of dual trauma, embodying both historical and contemporary national tragedies.

## Treblinka

Treblinka stands as a significant site of trauma in Polish history, representing one of five extermination camps established by the Nazi regime on Polish territory during World War II as part of Operation Reinhard (STURDY COLLS & COLLS, 2020). Unlike other Nazi concentration camps across Europe, whose functions included forced labour and detention, the sole purpose of Treblinka was the systematic execution of the Jewish population of German-controlled territory of Poland, but also prisoners of other nationalities (COLLS & BRANTHWAITE, 2018). The extermination camp (Treblinka II) was constructed in mid-1942, adjacent to an already existing labour camp (Treblinka I) in the proximities of Warsaw, and remained operational until late 1943 (DRATH et al., 2023). During its period of activity, the number of individuals murdered at Treblinka is estimated between 800,000 and 1,000,000 (STURDY COLLS & COLLS, 2020). The methods employed, including the use of gas chambers, reflected the Nazis' attempt to accelerate mass killings while concealing evidence of their crimes. Treblinka exemplifies the genocidal intent behind Operation Reinhard, one of the deadliest phases of the Holocaust. Today, its memory serves as a critical reference point for Holocaust remembrance and the study of forensic archaeology in documenting crimes against humanity.

A substantial body of literature has examined this site of historical trauma, particularly in

the context of scientific, specifically archaeological investigations (ABATE AND STURDY COLLS, 2018; DRATH et al., 2023; 2024; ROŻYCKI et al., 2020; STURDY COLLS 2012a, 2012b, 2013, STURDY COLLS & BRANTHWAITE, 2015; STURDY COLLS & COLLS, 2020). The earliest documented attempt to analyse the site using scientific methods was undertaken in 1944 by a joint Soviet-Polish Commission, immediately following the region's liberation (DRATH et al., 2023). As Sturdy Colls (2016) notes, early efforts at Holocaust-related sites were primarily aimed at verifying the existence of mass graves, rather than conducting comprehensive forensic analyses. The absence of large-scale investigations in subsequent decades can be attributed to the extreme sensitivity of the topic, the coexistence of competing Holocaust narratives, and the diverse cultural, religious, and symbolic meanings ascribed to human remains by individuals, communities, and societies combined with continued trauma of survivors and relatives of the victims (STURDY COLLS, 2016). Until 2007, no further official investigations were conducted in Treblinka, largely due to the prevailing belief that it had been completely destroyed by the Germans, leaving no recoverable evidence (STURDY COLLS, 2012b).

Nevertheless, from 2007 an ongoing interdisciplinary research project in forensic archaeology has been conducted in Treblinka. The research was successful largely because of its innovative and respectful approach that involved non-invasive methodology, which would guarantee preservation of victims' dignity and compliance with Jewish Halacha law (STURDY COLLS, 2016). In a very simplified manner, the Halacha law stipulates that human soul is connected to the body and disruption of a grave disrupts the peace of the soul (SCHUDRICH, 2015), and therefore exhumations are prohibited by the Jewish law, with only few exceptions (STURDY COLLS, 2016). LiDAR and walkover surveys combined with a detailed archival and documentary research allowed for identification of six possible burial sites and many material objects, including the remains of building with gas chambers and a considerable amount of human remains scattered on the surface of the site (STURDY COLLS & COLLS, 2020). This confirmed the assumption that neither in 1943 nor in the post-war years were traces of its existence completely erased. The team received permission to excavate the site of the supposed gas chamber with minimally invasive techniques, to examine the exact nature of the geophysical findings (STURDY COLLS & COLLS, 2020). It was also established that the northern border of the camp extended 50 meters further than previously thought. The innovative, non-invasive geophysical surveys allowed the location of several mass graves and cremation pits confirming that Treblinka was indeed a place of extreme trauma for hundreds of thousands of people.

In 2019, a new phase of investigations at Treblinka was launched under the supervision of the public prosecutor from the Institute of National Remembrance (IPN). An international research team aimed to locate clandestine burials of victims from the labour and extermination camps (DRATH et al., 2023). Utilizing Ground Penetrating Radar (GPR), the team surveyed the surface beneath the Treblinka parking area to identify sites for excavation. This analysis led to the discovery of approximately 8,600 disarticulated skeletal fragments lying shallowly beneath the surface. The minimum number of individuals represented was estimated at 49 (DRATH et al.,

2023). Anthropological examination determined that the remains belonged to males aged between 10 and over 60 years, with statures ranging from 141 to 183 cm. For 25 individuals, sex was confirmed through genetic analysis. Notably, nearly 70% of the remains exhibited signs of perimortem trauma, including blunt and sharp force injuries as well as gunshot wounds, corroborating historical reports that prisoners were sometimes executed with the use of means other than gas chambers (DRATH et al., 2023).

In 2019, a Polish research team discovered, exhumed, and analysed seven burials in the wooded area surrounding the Treblinka I labour camp. These graves exhibited characteristics distinct from the nearby mass burial pits, consisting of individual coffin burials containing relatively complete, though disturbed, skeletal remains, likely affected by looting. A detailed anthropological assessment determined that all skeletons belonged to young men of European origin, with four individuals under the age of 25 and three over 30, their statures ranging from 157 to 176 cm (DRATH et al., 2024). Two of the skeletons, which were sufficiently preserved for trauma analysis, displayed evidence of perimortem injuries, including gunshot wounds to the skull, blunt force trauma, and a projectile—either shrapnel or a bullet—embedded in the right patella (DRATH et al., 2024). Interdisciplinary analysis of documentary and material evidence recovered during the excavation suggests that these individuals played a significant role within the camp's operational structure, possibly as guards or watchmen. The violent deaths of two individuals, indicated by substantial perimortem trauma, point to the possibility that they were killed during a camp uprising (DRATH et al., 2024). This research exemplifies the complexity of forensic investigations in sites marked by severe trauma, where both victim and perpetrator narratives intersect. An objective approach to such analyses is crucial for a comprehensive understanding of the historical context, and forensic anthropology and archaeology provide essential tools for deepening interpretations and refining documentary research.

This investigation marked the first invasive anthropological and physical examination of Treblinka victims since the initial inquiry in 1946, as earlier mentioned studies by Sturdy Colls employed only non-invasive methods. However, the exhumations were abruptly halted following objections from the U.S. State Department and representatives of the Jewish community, who cited religious prohibitions on disturbing burial sites and noted a lack of prior consultation. In response, the Polish Prosecutor's Office suspended further exhumations and limited future efforts to non-invasive identification of mass graves and execution sites to avoid political tensions.

Despite the ethical and practical challenges associated with the exhumation of Jewish remains, such research exemplifies the potential of archaeological methods to profoundly deepen our understanding of sites marked by extreme trauma. At locations such as Treblinka, where no standing structures remain, the analysis of subtle landscape features has yielded valuable insights into the camp's spatial organization, infrastructure, and operational mechanisms. Notably, many of these findings have been achieved through non-intrusive approaches, preserving the sanctity of the site and honoring the memory of the victims. This is made possible through the application of interdisciplinary, non-invasive methodologies that allow for rigorous, yet respectful investiga-

tion of spaces imbued with profound religious and commemorative significance (STURDY COLLS, 2012a). Such work reflects the evolving scope of archaeological inquiry—particularly in settings characterized by traumatic histories, contested narratives, and heightened spiritual sensitivities.

Nevertheless, while non-invasive methodologies offer respectful alternatives for investigating such sites and provide relevant information, they are often limited in the scope and depth of data they can yield. In contrast, traditional archaeological methods remain indispensable, as they can uncover evidence inaccessible through surface-level analysis alone. As demonstrated by recent investigations, these approaches contribute not only to reconstructing the sequence of past events but also to enhancing our historical understanding and reinforcing the collective memory associated with these sites (DRATH et al., 2023).

### **Jedwabne**

During the Second World War, the persecution of the Jewish population was not conducted exclusively by Nazi forces. In some instances, local Polish citizens were actively encouraged or permitted to participate in acts of violence and extermination against their Jewish neighbours (PERSAK, 2018). One of the most infamous examples of such atrocities is the case of Jedwabne, a small village in northeastern Poland, where on July 10, 1941, a group of at least 40 Polish men carried out a massacre of the town's Jewish inhabitants. As a result, a minimum of 340 individuals including men, women, and children were killed, approximately 300 of whom were burned alive inside a barn (PERSAK, 2018).

One of the most heated and divisive discussions about Poland's recent history was triggered by the public revelation of the Jedwabne massacre in 2000, which caused considerable social shock. It caused a critical re-evaluation of collective identity and historical responsibility by upending the prevailing national narrative of Polish victimisation throughout the war (PERSAK, 2018).

The site was subject to an initial investigation in 1949, and a formal inquiry was reopened in 2001 (SZAROTA, 2002). Two mass graves were identified; however, the full exhumation of the victims was never completed. This was due in part to religious sensitivities surrounding Jewish burial practices, but also to political resistance to acknowledging local complicity in the crime (PERSAK, 2018). The work carried out lacked transparency and was chaotic, which further undermined the results (PERSAK, 2018). The investigation was ultimately suspended by the Institute of National Remembrance (IPN) in 2003 indicating that all perpetrators had already been condemned in the 1949 trial (IPN, 2003). Detailed analysis and documentation of the Jedwabne massacre and the following investigation and a historical context regarding this case can be found in the following key publications: BIKONT (2015), SZAROTA (2002), PERSAK (2018).

Amid this highly charged atmosphere, public discourse was marked by the dissemination of inaccurate information, along with premature conclusions and speculative claims. Many of these assertions were made before the recovered artifacts had undergone specialist analysis or a comprehensive review of the investigative findings. Such early misrepresentations contributed

to the development of distortions and persistent myths that continue to circulate within public narratives. These misconceptions particularly concern the estimated number of victims in the two identified mass graves, the interpretation of recovered small arms ammunition, and the significantly limited scope of the exhumation efforts (PERSAK, 2018).

The incomplete exhumation at Jedwabne, coupled with premature conclusions drawn from the German shell casings recovered during the investigation, has served for years as a pretext to question the findings of both historians and the public prosecutor regarding the participation of local Poles in the 1941 massacre. The Polish state's persistent reluctance to resolve the matter, the disorganized excavation procedures, and the swift dissemination of unverified claims, which was subsequently contradicted by further studies, have collectively contributed to the ongoing ambiguity surrounding the case. Moreover, the consistent refusal to authorize a full exhumation of the victims' remains has left the Jedwabne atrocity unresolved within both legal and historical discourse. Although additional efforts to resume exhumation followed the 2000-2003 investigation, in 2019 the Polish General Prosecutor formally declared that there were no justifiable grounds for further examination due to the failure to identify the perpetrators of the act (IPN, 2003).

Beyond its legal and historical dimensions, the Jedwabne case presents profound ethical challenges. Political pressures have played a significant role in suppressing discussions that interrogate the extent of Polish participation in the persecution of Jewish communities during World War II. As Domańska (2017) critically observes, the debate has shifted away from the imperative of restoring dignity to the victims. Instead, it increasingly focuses on absolving the accused, either by contextualizing their actions within the extreme conditions of wartime or, in more radical interpretations, by seeking to disprove their involvement altogether. This reframing not only distorts historical accountability but also reflects broader struggles over collective memory and national identity.

### **Communism period**

In the aftermath of World War II, Poland, alongside other nations in Central and Eastern Europe, underwent the forced imposition of communist regimes under Soviet dominance, fundamentally transforming all levels of society. Repressive policies were enacted to quell both actual and perceived dissent, indiscriminately targeting individuals suspected of opposing the newly established political order. The period between 1944 and 1956, often referred to as the Stalinist era, was particularly violent (PACZKOWSKI, 2015). During this time, over 4,000 individuals were executed, an additional 9,500 perished in prisons, and a minimum of 10,000 lost their lives as a result of various forms of repression, including armed conflict, arrest, and torture (KONCZEWSKI, 2020).

One particularly harrowing form of repression involved the secret burial of victims in clandestine graves, deliberately obscuring their final resting places and condemning their families to decades of uncertainty regarding their fate (KONCZEWSKI, 2020). Only after the political trans-

formation of 1989 did conditions become conducive to investigating these crimes. A significant turning point occurred in 2011, when large-scale interdisciplinary research initiatives began to be systematically applied to such cases (SAWICKA, 2016). Numerous studies in forensic anthropology and archaeology have since focused on locating and analysing burial sites of victims of communist repression. Due to the space limitation, we can only indicate the relevant references on this topic: ŻABA et al. (1994), MŁODZIEJOWSKI et al. (1999), SAWICKA (2016), KONCZEWSKI (2020), SZLESZKOWSKI et al. (2012a, 2012b, 2014a, 2014b, 2015a, 2015b, 2016, 2020), SZLESZKOWSKI (2016), SZWAGRZYK (2003, 2013, 2016a, 2016b, 2017a, 2017b).

## Conclusion

Poland's landscape is etched with the legacies of trauma. Its complex and turbulent history has left behind numerous mass and clandestine burial sites spanning different periods, many of which remain undiscovered or unanalysed. This article has examined selected sites, Katyń, Jedwabne, Treblinka Nazi extermination camp, and remnants of the Communist regime, not as isolated tragedies, but as emblematic of the broader challenges facing forensic anthropology and archaeology in post-conflict contexts. These sites are not merely geographic coordinates, they are repositories of silenced histories, contested memories, and unresolved grief. In this process, forensic anthropology stands as a vital agent, not merely a tool for scientific analysis, but as an interlocutor between the living and the dead, between history and justice.

The case studies presented here substantiate the article's central argument: that forensic anthropology plays a vital, albeit fraught, role in mediating between scientific inquiry and historical justice. Each example illustrates how forensic investigations are shaped not only by technical and methodological demands, but also by political sensitivities, stakeholder tensions, the ethical weight of working with the dead, and the intrinsically delicate nature of the crimes in question. The absence of living witnesses and the passage of time often shift these inquiries from strictly forensic procedures to historically inflected reconstructions, underscoring the discipline's interdisciplinary reach and its capacity to engage with memory, law, and collective identity.

In this regard, Domańska's (2017) interpretation of the "forensic turn" (ANSTETT & DREYFUS, 2015) becomes particularly relevant. The privileging of forensic evidence over narrative sources in historical research, especially in cases of mass grave exhumations and human rights violations, reflects a broader epistemological shift. While this shift may enhance the perceived objectivity of historical claims, it also risks marginalizing the interpretive labour of historians and the lived experiences embedded in oral and testimonial traditions. The tension between scientific authority and narrative plurality is not merely academic; it has profound implications for how societies reckon with past atrocities and construct frameworks of accountability.

Nonetheless, the role of forensic anthropology remains indispensable in any context involving the recovery and analysis of human skeletal remains. Its capacity to generate meaningful scientific data and support efforts toward truth, recognition, and justice underscores its enduring

relevance in both contemporary and retrospective investigations.

Despite these tensions, forensic anthropology remains indispensable. Its capacity to recover and analyse human skeletal remains generates data that not only supports legal and historical claims but also affirms the dignity of victims and the rights of communities to truth and recognition. Through meticulous study, forensic anthropologists unravel hidden narratives and restore personal identities long buried beneath layers of denial and silence. Their work intersects with law, religion, ethics, and collective memory, navigating terrain that is as emotionally charged as it is politically contested. In doing so, they do not merely reconstruct biological profiles, they reanimate histories, challenge official narratives, and contribute to the slow, often painful process of societal healing. It is precisely in these contested and emotionally charged contexts that the discipline reveals its deepest humanistic value: offering dignity to victims, closure to families, and accountability to history.

The challenges are many: ethical constraints, political resistance, religious sensitivities, and the ongoing need for interdisciplinary collaboration. Yet these do not diminish the transformative potential of forensic science, they affirm its necessity. As the pursuit of historical justice continues, particularly in places where atrocity and memory collide, forensic anthropology and archaeology must remain at the forefront, bridging empirical rigor with societal healing.

Ultimately, the bones and evidence recovered speak not only of death, but of resistance, remembrance, and the enduring human pursuit of truth. Through them, the past is neither forgotten nor fixed. It is continuously revisited, reinterpreted, and, crucially, recognized. In this recognition lies the promise of justice, not as a final verdict, but as an ongoing commitment to dignity, accountability, and the ethical remembrance of those whose lives were violently interrupted.

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Table 1: Selected key investigations of mass burials associated with major atrocities of the 20th century in Poland, outlining methodologies applied and principal challenges encountered during the search and identification work.

<b>Event (date)</b>	<b>Authors of the study</b>	<b>Date of the on-site activity</b>	<b>Methodology</b>	<b>Main challenges</b>
Katyn Forest Massacre (Katyn Forest, Mednoye, Kharkiv), 1940	O'Donell, 2016	April-June 1943	<p>Initial test pits conducted by the Nazi investigation team to assess the extent of burial sites.</p> <p>Establishment of a forensic field laboratory near the gravesite.</p> <p>Joint work of Polish and international forensic and medical experts in the exhumation and examination of cadavers.</p> <p>Use of artifacts found in graves (documents, identity cards, newspapers, letters) to determine the victims' identity and time of death.</p> <p>Cleaning, sorting, and conservation of documents recovered from Katyn by chemists at the State Institute of Forensic Medicine in Kraków.</p>	<p>Excavation in frozen ground (March/April).</p> <p>Opening of graves without a prepared research plan, lack of archaeological methodology during excavation and recovery of the bodies.</p> <p>Extremely large number of exhumed bodies (approx. 100 per day).</p> <p>Different degree of body decomposition depending on burial site (soil composition), complicating PMI estimation.</p> <p>Accelerated decay due to high temperatures in the first week of June, leading to the decision of burying the unexamined graves.</p>
	Persak, 2010	1991, Kharkiv and Mednoye	Analysis of Soviet archive documents confirming the existence of mass burial sites of Polish officers beyond Katyn.	Exhumations were limited in scope and duration by the Russian side, preventing a thorough investigation of the discovered mass graves.

			<p>Application of dispersed test pits, archaeological excavation.</p> <p>Medico-legal and anthropological analysis of the recovered remains.</p>	<p>The absence of accurate topographic maps for conducting and documenting research.</p> <p>Research emphasized forensic and criminal investigation methods over archaeological approach.</p> <p>Unstable political situation, further complicating the research process.</p>
		1994-1996, Kharkiv	<p>Systematic archaeological survey using geodetic and cartographic methods to produce accurate maps of the terrain, enabling the location of all mass graves: grid survey (10 m × 10 m squares), borehole probing every 2 m (sometimes every 1 m or 0.5 m) with a 2.5-inch hand auger (penetration up to 5 m, producing cross-sectional images revealing disturbances in the natural stratigraphy); a total of 4,673 boreholes were drilled.</p> <p>Exploration of mass graves and anthropological and medico-legal examination of remains.</p> <p>Analysis of grave contents to identify “Polish” graves; discovery of additional separate pits containing hidden belongings of the victims.</p>	<p>The need to distinguish mass graves of Polish officers from Soviet victims of executions during the period of the “Great Purge.”</p> <p>Discrepancy between the expected number of individuals and the results of the estimated findings.</p> <p>Numerous signs of looting pits congaing number of damaged skulls with broken teeth.</p> <p>Destruction of a large number of remains during the construction of the KGB sanatorium in the 1970s and 1980s.</p>

		1991, 1994-1996, Katyn	<p>1991: 20 test pits conducted using an excavator.</p> <p>1994–1995: borehole probing with a hand auger; areas with existing structures examined using excavation methods.</p> <p>Medico-legal and anthropological examination of exhumed remains.</p> <p>Analysis of artifacts found in the graves.</p>	<p>Initial exhumation in 1943 involved 4,143 or 4,243 individuals; the remains were reinterred in six large graves arranged in two rows (“PCK cemetery”).</p> <p>Probable further earthworks by Soviet authorities using a bulldozer, visible in 1944 Luftwaffe aerial photographs.</p> <p>Numerous subsequent modifications to the cemetery in the following years.</p>
		1994-1996, Mednoye	<p>Combined method of borehole probing and regular excavations to locate mass graves.</p> <p>Partial exhumation of remains from mass graves.</p> <p>Medico-legal examination.</p> <p>Analysis of recovered artifacts.</p>	<p>Specific soil conditions causing adipocere formation on the bodies, complicating exhumation.</p>
Treblinka 1942-1943	Sturdy Colls, 2013; 2016; Sturdy Colls and Colls, 2020	August and November 1944	<p>Exhumation of three mass graves and number of individual graves.</p> <p>Creation of the first camp plan.</p>	<p>Not specified.</p>
		2007-2013	<p>Desk-based research (interviews with survivors and witnesses; extensive archival material search-aerial photograph, LiDAR analysis).</p>	<p>The widespread belief that the Nazis erased all traces of the camp in 1943.</p> <p>Limited information at the site concerning its layout.</p>



			<p>Site identification and recording (detailed investigation involving GPS surveys, topographical mapping, non-intrusive geophysical surveys.</p> <p>Targeted excavations to confirm nature of structures identified in the geophysical surveys.</p> <p>Cremated and non-cremated human remains were located on the surface and during excavations.</p>	<p>Lack of remaining buildings and elements of the camp.</p>
	Drath et al. 2023	2016-2019	<p>Archaeological analysis: extended spatial data, geophysical measurements, and excavation work. These results were used to select research areas and conduct geophysical and excavation surveys (GPR, combination of the demirant and quadrant excavation method, stratigraphic excavation method with a single context recording system), search with metal detector on the ground, backhoe with a slope bucket, manual exploration and bone exhumation with plastic tools.</p> <p>Anthropological methodology used for bone remains examination (biological profile, trauma analysis, MNI).</p> <p>Genetic methods applied to verify anthropological sex estimation and determine mtDNA haplogroups; genetic profiles created using tooth samples, and kinship analysis of the exhumed remains performed with Familias 3 software.</p>	<p>No structures of cremation pyres nor any buildings from the extermination camp preserved.</p> <p>Unknown location of the graves.</p> <p>Bones in a very fragmented state of preservation, commingled.</p>

Jedwabne, 1941	Szarota 2002; Persak 2018	March-June 2001	<p>Grave location and its outline determination: analysis of aerial photographs, archaeological survey (borehole probing using a geological auger)</p> <p>Surface investigation with a metal detector.</p> <p>Archaeological and exhumation works: exploration of the burial pit using shovels, soil screening with sieves; remains preserved in anatomical order were left in situ.</p> <p>Bone fragments separated through sieving from the near-surface layers were subjected to anthropological and medico-legal examination.</p>	<p>The area surrounding the memorial site had been used as arable land for decades, resulting in the loss of surface traces.</p> <p>The scope of grave exploration was influenced by political, diplomatic, and religious considerations; the planned full exhumation with medico-anthropological analysis was cancelled at the last moment.</p> <p>Inability to recover remains from the grave.</p> <p>Work conducted under media and time pressure.</p> <p>Strong emphasis on drawing immediate conclusions regarding the recovered artifacts, prior to laboratory analysis.</p> <p>Impossibility of determining the MNI, describing the injuries, and establishing the cause of death.</p>
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<b>VICTIMS OF COMMUNISM REPRESSION</b>				
<b>Event (date)</b>	<b>Authors of the study</b>	<b>Date of on-site activity</b>	<b>Methodology</b>	<b>Main challenges</b>
Osobowicka Street cemetery (prisoners from the Kleczkowska Street prison), 1945-1954	Szelszkowski et al., 2012 a,b, 2014a,b; Sawicka, 2015; Szwa-grzyk, 2016a; Konczewski, 2020	2003-2011	<p>Archival research.</p> <p>Geophysical survey and archaeological excavation (stratigraphic method).</p> <p>Use of metal detector.</p> <p>Medico-legal and anthropological examination of the remains.</p> <p>Well-preserved long bones and teeth were collected and secured from each set of remains for genetic analysis.</p>	<p>Presence of burials not registered in the archives.</p> <p>Disorder in the burial sequence within the cemetery grounds (intentional disinformation).</p> <p>Destruction of prisoner records – lack of comparative material on diseases.</p> <p>Identification of “prison plots” in contemporary cemeteries is complicated by their reuse for newer graves since the 1980s, restricting potential exploration to areas no wider than a cemetery alley.</p>
Military Cemetery on Powazkowska Street in Warsaw (prisoners from Rakowiecka Street prison), 1948-1955	Szleszkowski et al., 2015b; Szwa-grzyk 2016b; Konczewski, 2020	2012-2013, 2017	<p>Interdisciplinary research team composed of biological anthropologists, archaeologists, historians, geneticists, and coroners who conducted the subsequent examinations</p> <p>Historical research of existing documentation.</p> <p>Archeological excavation.</p> <p>Anthropological and medico-legal analysis of morphology of the bones and evidence of trauma.</p> <p>DNA testing and meta-analysis of all source data.</p>	<p>Lack of information in cemetery archives regarding who was buried in the graves.</p> <p>Significant challenges in identifying the deceased based on burial context and personal items recovered.</p> <p>Additional complication: Quarter L did not contain only execution victims. In addition to prisoners, over a dozen civilians were buried by municipal services, as well as at least 99 German soldiers killed during the 1944 Warsaw Uprising.</p>

Partizants unit from the National Armed Forces, campaign „Avalanche-Lawina”, Opole region; 1946	Szleszkowski et al., 2015a	2012-2013	<p>Archival data analysis.</p> <p>Archaeological excavation (open pit method).</p> <p>Anthropological and medico-legal assessment of the remains, trauma analysis.</p>	<p>Bones were deposited chaotically and intermixed within the soil layer.</p> <p>The incompleteness of the skeletons prevented morphological attribution of the remains to specific individuals and hindered classification of injuries for determining the circumstances of death.</p>
	Szleszkowski et al., 2020	2016	<p>Archaeological exploration of the burial pits (standard archaeological methodology applied).</p> <p>Use of metal detector.</p> <p>Medico-legal and anthropological examination of the remains.</p> <p>Analysis of the historical context together with medico-legal assessment to identify mechanism of injury (detonation of explosive material).</p> <p>Genetic analysis of exhumed remains.</p>	<p>Necessity of continuous accumulating water removal from the burial pits.</p> <p>Work assisted by sappers due to the serious risk of unexploded ordnance.</p> <p>In most cases, severe erosive changes made it impossible to reliably assess the presence of perimortem trauma, the mechanism and circumstances of injury, or the cause of death.</p>