

## Excavating Nazi Extermination Centres

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The paper deals with the archaeology of the Nazi extermination centres at Chelmno, Treblinka, Sobibór and Bełżec. Aspects of sub-field identity are discussed first. The archaeology of extermination centres is the subject matter of a number of sub-disciplines, ranging from Forensic Archaeology, through Combat and Industrial Archaeology, to Public and Historical Archaeology. We regard the extermination process as a past reality, a series of historically established events which do not need to be proven by archaeological excavations. Archaeology, in our case, has the role of supplementing and filling gaps, especially in terms of sites' layout, structures and artifacts. We describe the research of the extermination centres since the mid 1980s, discuss facets of site destruction processes, and emphasize the role of looting and other activities in determining the past and future layout and contents of the sites. These points are illustrated by some results of the archaeological research we carried out at Sobibór in 2007 and 2008. We indicate that the exact locations of important features of the extermination centres, for example gas chambers, are still unclear. Thus, archaeology is indispensable in reconstructing and preserving the physical layout of the extermination centres, as well as in studying and interpreting the artifacts embedded in their sediments.

### Introduction

Between 1941 and 1944 the Nazis attempted to find a 'final solution to the Jewish problem', creating a program of extermination that killed millions. More than half of the victims were murdered in six killing centres: Auschwitz-Birkenau and Chelmno in western Poland and Treblinka, Sobibór, Majdanek and Bełżec in eastern Poland. Although historical research on the 'Final Solution' has been and continues to be very intensive (e.g., Gilbert, 1986; Hilberg, 1985), the archaeology of the extermination centres has been very limited in its scope. All of the sites of the former extermination centres have been turned into heritage centres featuring museums and memorials. For example, almost the entire area of the former extermination centre at Bełżec has recently become a huge monument. Thus, it is impossible to conduct archaeological research at such a site, and we are left with the information provided by the excavations prior to the inauguration of the monument and the museum in 2004. However, it is still possible to excavate the former extermination centre at Sobibór, south of the town of Włodawa.

Since the Nazis ended their killing activities at Sobibór in late 1943, building activities at the site have been minimal: the ash mound memorial and the nearby statue and monument were erected in the 1960s, as well as a small museum near the railway in a former kindergarten. Hence, most areas which were parts of the extermination centre have the potential to be studied archaeologically. This is one of the reasons that led one of us (YH), in 2006, to consider the possibility of conducting an archaeological research project at Sobibór in the

framework of his Ph.D. research. The Sobibór Excavations Project was established since then by two of us (IG and YH) on behalf of the Archaeological Division of Ben-Gurion University, by Marek Bem and Wojciech Mazurek of the Sobibór Museum and by Yad Vashem, the Israeli Holocaust Martyrs' and Heroes' Remembrance Authority.

In October 2007 we conducted the first field season at Sobibór, in a restricted part of the site between Camps 2 and 3. In July 2008 we devoted an additional field season to a geophysical study of areas in Camps II and III, in collaboration with a team from the United States. Since the results of the recent archaeological and geophysical aspects are preliminary, is it our intention to describe them briefly as a case study. We will devote more space to several aspects related to issues of research methodology, problems and prospects concerning the archaeological research of Nazi extermination centres.

## **Methodological and theoretical considerations**

### ***1. Classification of Nazi camps***

In terms of typology, the subject of the current paper is the Nazi 'extermination centres' during their operation in 1942-1943. An extermination centre is a place designed to eliminate Jews and other groups or individuals who were transported to such centres, mostly by trains, murdered on arrival by gassing, and immediately cremated and/or buried. A large proportion of the murdered Jews were from Poland, but Jews from other parts of Eastern, Western and Southern Europe were also transported and murdered at the extermination centres. An extermination centre was run by about twenty SS men and dozens of auxiliaries, mainly Ukrainians. Between three hundred and six hundred Jews were enslaved at each centre. They either organized and packed the confiscated property or cremated and buried the murdered. There were four extermination centres: Chełmno in Western Poland; Treblinka, Sobibór and Bełżec in eastern Poland (Fig. 1). Hilberg (1985: 863-894) offers a different typology: the destruction of European Jews was carried out in six 'killing centres', the above mentioned four sites, along with Auschwitz-Birkenau in western Poland near Krakow, and Majdanek in Lublin in eastern Poland. The latter two distinctly differ from the extermination centres: they are many times larger than the former. Although Jews were exterminated there by gas (Zyklon B), at Auschwitz-Birkenau and Majdanek most space was used as concentration camps where hundreds of thousands of inmates, mostly Jews, were kept as a resource population for forced labour (Hilberg, 1985: 917-936).

From the archaeological perspective, in terms of layout, structures and site formation processes, the four extermination centres clearly form a category distinct from Auschwitz-Birkenau and Majdanek. The latter were originally constructed as concentration camps, and forced labour was used there before, during and after the extermination of Jews took place. Since they were in use up to the arrival of the Red Army, their structures/barracks still stand today (Fig. 2). The extermination centres are also distinct archaeologically due to their unique function and history. They were established solely for extermination, mostly of Polish Jews, and when that task was accomplished, during the second half of 1943, they were destroyed by the SS in an attempt to conceal the extermination process; the barracks were taken apart, the gas chambers erased by explosives, and the land ploughed. Thus, from the archaeological point of view there are two categories of sites: four 'extermination centres' and two 'concentration and extermination centres'.



**Fig. 1:** Map of Nazi extermination and concentration centres in Poland and locals of deportation to the centres.



**Fig. 2:** Majdanek, general view

## **2. Aspects of history, archaeology and sub-disciplinary identity**

The archaeology of Nazi extermination centres can be the subject matter of a number of sub-disciplines of archaeology. Hundreds of thousands of bodies cremated and buried inside each of these sites call for using methods of forensic archaeology (e.g., Connor, 2007) or the disaster archaeology approaches (Gould, 2007). Kola (2000) drilled intensively in large areas of Bełżec and Sobibór and the cores he extracted were used to define the location and extension of mass graves (see below). That Kola was allowed to drill mass graves is considered by Orthodox Jews as 'a monumental failure' (Weiss, 2003). As it stands now, it seems that mass graves at the Nazi extermination centres will not be excavated in the foreseeable future. Information regarding their location and extension will be obtained by remote imagery and non-invasive geophysical methods that are standard tools of forensic archaeology (Cheetham et al., 2007: 196-206).

Combat archaeology, concerned with issues of the reflection of conflicts in material culture, their presentation and memory (e.g., Schofield et al., 2002, Schofield, 2005), adds important perspectives to the study of extermination centres. Also worth noting is the subfield of industrial archaeology (e.g., Casella and Symond, 2005, Cossons, 2000), and in this context it is sufficient to mention that the extermination procedure, from the train ramp, to the gas chambers, and to the mass graves, was a 'conveyer belt' process (Hilberg, 1985: 967-976). Historical archaeology is also relevant, and especially its concern with the dichotomies of archaeology/history and artefacts/documents (Hall and Silliman, 2006, Hicks and Beaudry, 2006).

We regard the Nazi extermination of Jews during the Second World War as a past reality. There is ample written and oral documentation to support it, as well as comprehensive and detailed historical studies that authenticate what Hilberg (1985) calls 'The Destruction of European Jews'. Arad (1987), in his study of the *Einsatz Reinhardt* extermination centres, further establishes the role of Treblinka, Sobibór and Bełżec in the destruction process. Beyond the written documents, the evidence consists also of oral accounts of the survivors and SS perpetrators who served in the extermination centres and committed the murders (Bezwińska and Schindler, 2002, Rückerl, 1977, Sereny, 1983). Thus, the extermination of Jews in general, and the extermination of Jews at Sobibór and other centres in particular, is a historically established truth which does not need to be proven by archaeological excavations. Archaeology has the role of supplementing information on the layout of the sites, structures and artefacts in use there, thus providing data for the historical reconstruction of the sites.

Evans (1997) in defending historians' ability to know what really happened, and rejecting the denial of the Holocaust by revisionists, states that 'Auschwitz was not a discourse... The gas chambers were not a piece of rhetoric' (*ibid*: 124). Moreland (2001: 114) in his book *Archaeology and Text* quotes this, and suggests that historical archaeology can assert the truth of extermination '...in the face of the revisionists' lie...'. Being acquainted with the terrain of Sobibór and other extermination centres, and also being familiar with writings of revisionists, we take a more reserved position regarding the role of historical archaeology in substantiating the extermination in general and gas chambers in particular. Knowing that the evidence of the extermination centres was obliterated by the perpetrators, we assume that remains of gas chambers, even if preserved *in situ*, are in an extremely bad state of preservation. If the standing gas chambers of Majdanek and Auschwitz-Birkenau are currently denied as such, there is a minimal chance, if at all, that future exposure of poorly preserved

remains of gas chambers will assert any truth in the face of a revisionists' lie. The archaeology of extermination centres is not and cannot be an instrument to show deniers how wrong they are. We think that documentation of detail is intrinsically important even without the need to refute lies, but we believe that, paraphrasing Evans (2002:237), professors of geography, and archaeologists as well, should not waste time debating with people who think that the earth is flat.

### **3. Site destruction processes**

Although the extermination centres are very recent archaeological sites, they all underwent extensive modification since they were first established. The underlying causes for these modifications were refurbishment, concealment, pillaging, post-war collection of evidence and remembrance.

**Refurbishment:** the actual construction of the extermination centres started in late 1941 (Chełmno, Bełżec) and in March and May 1942 (Sobibór and Treblinka respectively) (Arad, 1987: Ch. 4-6). After several months, some of the sites underwent a process of refurbishment: Bełżec in June-July 1942 and Sobibór and Treblinka in September-October 1942 (Arad, 1987: Ch. 16). The best recorded modifications are those of the gas chambers and the mass graves. In all the three centres the older three chambered gassing installations were replaced by new buildings with six gas chambers (but see Hilberg, 1985: 879). The details, however, are not always clear. It is known that in Bełżec, for example, the new gas chambers were moved to a different part of the site. In the case of Sobibór, the location of the new gas chambers in relation to the older ones is unknown.

**Concealment:** the SS command decided to close and eliminate the *Einsatz Reinhardt* sites probably in late winter 1942/3, during or immediately after Himmler's visit to Sobibór and Treblinka (Arad, 1987: 165-169). Arad (1987: 370-376) gives a detailed description of the elimination of the extermination sites, from Bełżec in the summer of 1943 to Sobibór in November of the same year. The SS levelled and cleaned the grounds of the sites and planted forests of young pines. In late October-November, almost the entire site of Sobibór was erased.

The extent of erasure of the structures and other installations connected with the extermination is apparent on the few remaining photographs of the barren terrain of Bełżec after it was demolished (Lachendro, 2007: 43, 64). After the liquidation of Bełżec, a farm was built there for a Ukrainian guard and his family, and similar farms were also established at Treblinka and Sobibór after their liquidation (Arad, 1987).

The significance of such intentional destruction to the archaeological study of the extermination centres cannot be overstated. Since most structures were wooden barracks, they were simply taken apart and removed from the sites to be used elsewhere. The gas chambers were destroyed with explosives. Therefore, the chances to archaeologically reconstruct plans of site structures are not high. Moreover, the SS men undoubtedly removed all tools and artefacts that could be of use, leaving behind mainly scrap metal.

**Pillaging:** immediately after the sites had been evacuated, they were ransacked by the local farmers searching for valuables, as a resident of Bełżec testified (Arad, 1987: 371):

After levelling and cleaning the area of the extermination centre, the Germans planted the area with small pines and left. At that moment, the whole area was plucked to pieces by the neighbouring population, who were searching for gold and valuables. That's why the whole surface of the camp was covered with human bones, hair, ashes from cremated corpses, dentures, pots and other objects.

The looting of the area of the extermination centres was very intensive then, and still continues today; the last large case of grave robbing in Treblinka was reported in 2002 (Głuchowski and Kowalski, 2008). In October 2008, while in Sobibór, we noticed that people, probably equipped with a metal detector, had clandestinely dug a couple of days before we arrived in the forest, south of the ash mound memorial.

**Post-war collection of evidence:** the official investigations into the atrocities carried out by the Nazis at the extermination centres were carried out immediately after the war. For example, in October 1945, a Polish war crimes investigation committee excavated nine mass graves in Bełżec. Evidence was found of thousands of humans who had been cremated, and bone particles that had been ground into small pieces (O'Neil, 1998). Although excavations were carried out, the work was not archaeological but rather forensic in nature.

**Remembrance:** by this we mean activities that were carried out at the sites by local authorities in the framework of remembrance and museological activities. Such activities disturbed strata and remains, affected the preservation of the sites, and must be considered in planning excavations at the sites. Pawlicka-Nowak (2004a: 15) describes the activities in the early 1960s in the mass graves area of Chełmno in the Rzuchów forest:

Bulldozers, deep plowing with forest plows, making the terrain more beautiful by planting bushes and trees, concrete roads, all this obliterated the traces of the centre's operation still visible during those years.

In 1996, Martin Gilbert (1997: 250) and a group of University College London students visited Sobibór and noticed

There is a patch of sand where men have recently been digging, trying to find the rails that were used for the crematorium pyres where the bodies have been burned. This work is being done by the regional museum at Włodawa.

To the best of our knowledge, no rails used for cremation have yet been found at Sobibór.

### **The archaeology of extermination centres: a brief survey**

Although, as shown above, extermination sites were investigated and even dug, the work was not archaeological in nature. In fact, in the decades that followed the end of the Second World War no archaeological research was carried out in the extermination centres until 1986, when Ł. Pawlicka-Nowak started excavating the site of Chełmno (Golden, 2003, Pawlicka-Nowak, 2004a, Pawlicka-Nowak, 2004b).

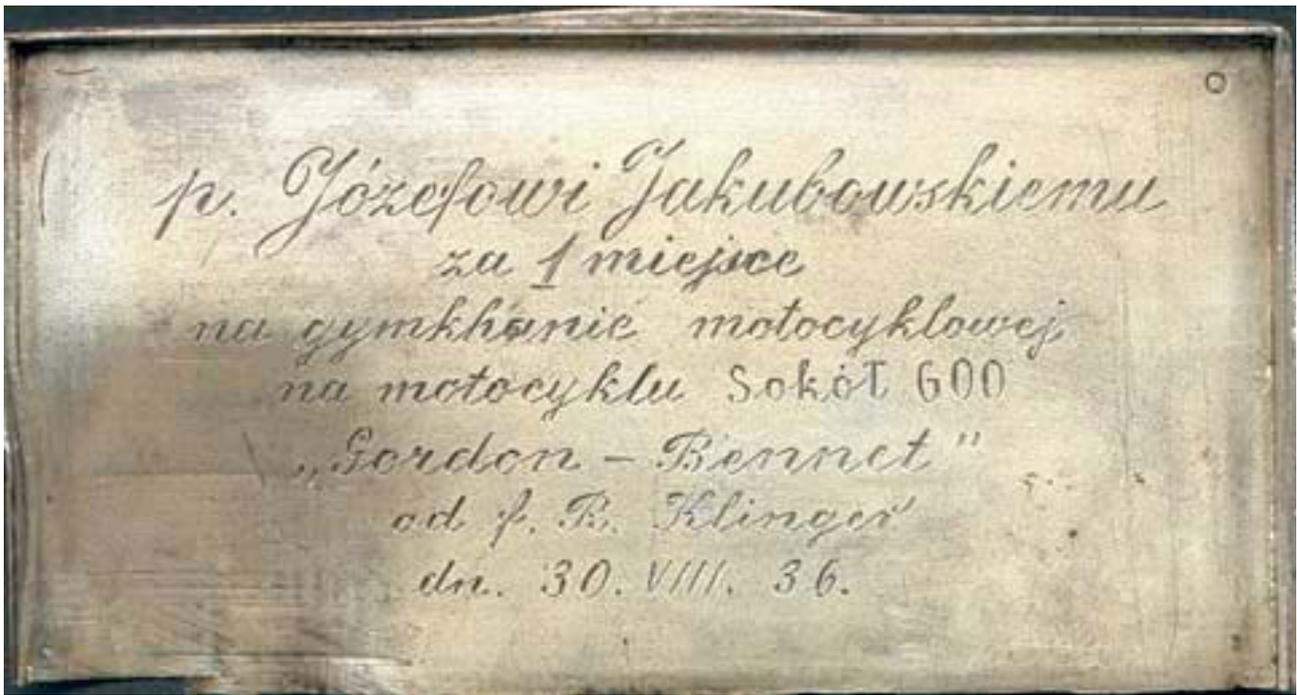
## 1. The Excavations of Chełmno

The extermination centre of Chełmno-on-Ner in the Łódź area (Fig. 1) is different from the other extermination centres since it consisted of two separate compounds. The first one was the Castle (the Palace or the Estate) in the village of Chełmno (Kulmhof), where Jews were assembled and murdered in stationary gas vans. The bodies of the victims were then taken by the gas vans four km northward, to the Rżuchów forest clearings. This was the second part of the site, where the bodies were cremated and buried in mass graves (Krakowski, 1993). Estimations of numbers of victims killed at Chełmno vary between 150,000 (Hilberg, 1985: 1219, Ruckerl, 1977: 288-293) and 250,000 (Krakowski, 2004: 15).

The excavations of Chełmno were carried out by Ł. Pawlicka-Nowak on behalf of the Konin Museum in three phases during the years 1986-1987, 1997-2002 and 2003-2004. The reports published until now describe the finds in both Kulmhof and Rżuchów forest (Pawlicka-Nowak, 2004a, Pawlicka-Nowak, 2004b). The most important elements unearthed at the Castle in Kulmhof are the remains of the basement rooms and the corridor through which the naked Jews were marched to the gas vans. Numerous artefacts were found here, many of which belong to Jews, such as a fragment of a denture with a Hebrew date that corresponds to November 29, 1940, curved on it (Fig. 3) (Pawlicka-Nowak, 2004b: 49). Nine pits were excavated in the yard in front of the Castle and numerous artefacts were recovered, including jewellery (Budziarek, 2004). Judaica items were also found, for example, pit 4 yielded items such as a knife with the Hebrew inscription 'Holy Sabbath' and the inscription 'Pesach' on vodka glasses (Pawlicka-Nowak, 2004b: 54-56). Also worth noting is a cigarette case lid (Fig. 4) from pit 2, with an inscription indicating that the case was a first prize awarded to Josef Jakubowski in a motorcycle race in 1936 (Pawlicka-Nowak, 2004b: 53).



**Fig. 3:** A fragment of a denture with a curved Hebrew date which corresponds to November 29, 1940 (courtesy of Ł. Pawlicka-Nowak, Regional Museum of Konin).



**Fig. 4:** Chełmno: a fragment of a cigarette case lid from pit 2. First prize awarded to Jósef Jakubowski in a motorcycle race in 1936 (courtesy of Ł. Pawlicka-Nowak, Regional Museum of Konin).



**Fig. 5:** Artefacts from Chełmno displayed at the Holocaust Exhibition at the Imperial War Museum, London, on a loan from the Regional Museum of Konin.

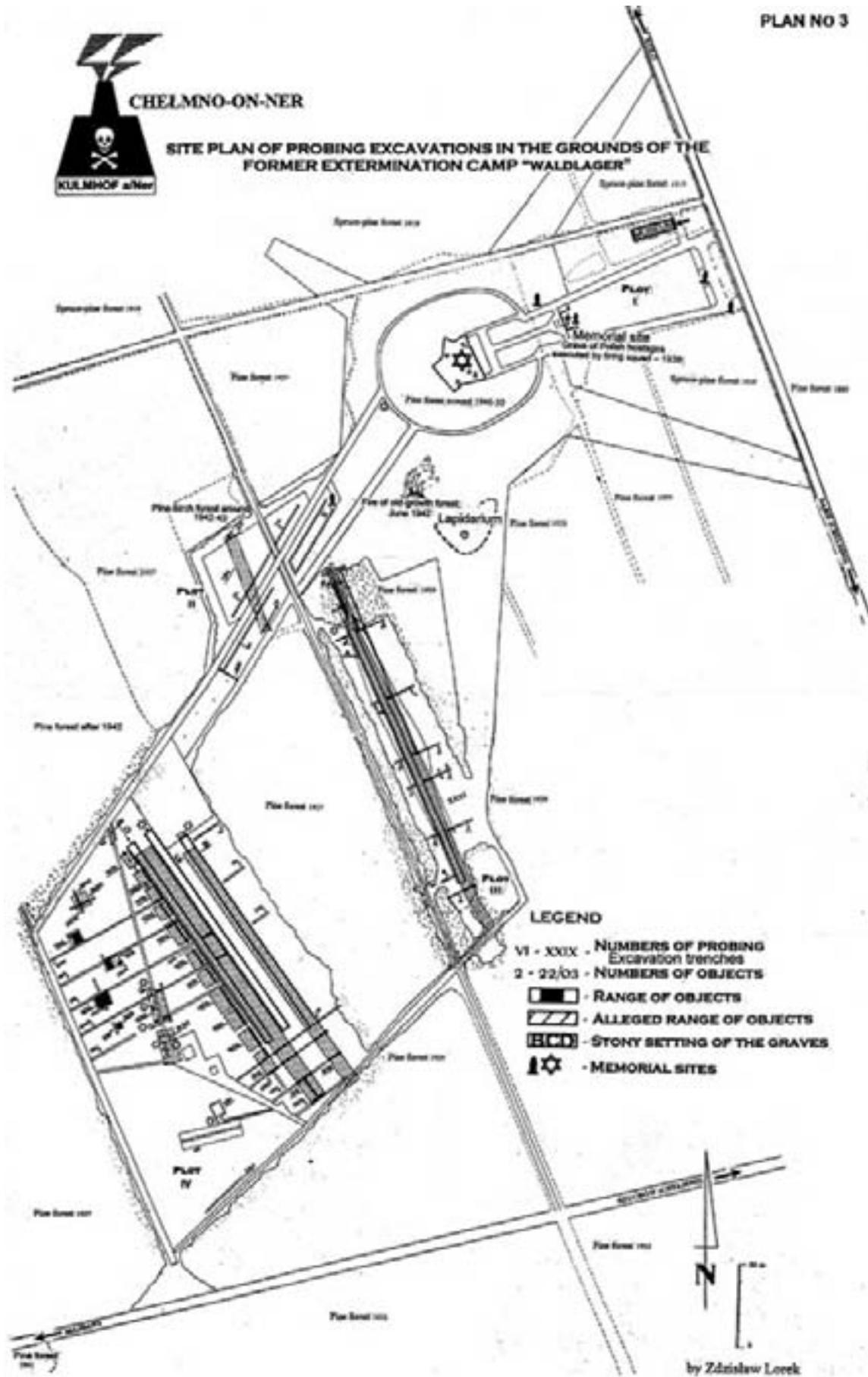


Fig. 6: Plan of the Rzuchów forest, the area of the Chełmno mass graves (courtesy of Ł. Pawlicka-Nowak, Regional Museum of Konin).

The artefacts mentioned above and those illustrated in the printed reports and on the Web are just a minute fraction of the thousands of artefacts recovered in many parts of Chełmno. They include glass artefacts such as bottles, syringes, metallic tableware such as cups, plates, bowls, silver, as well as combs, tooth brushes, dentures, spectacles shoes, textiles, etc. Hundreds of such artefacts are exhibited at the local museum near the Castle and in the Imperial War Museum in London (Fig. 5). The excavations of Chełmno yielded what seems to be the richest collection of extermination centre artefacts.

The excavations at the Rzuchów forest (Fig. 6), focused mainly on five mass graves (Pawlicka-Nowak, 2004a: 22-24, Pawlicka-Nowak, 2004b: 59-64), and eight 'objects'. These are remnants of structures or installations, four of which are defined as 'field furnaces' and four as 'crematoria' (2004a: 18-21). The graves vary in length between 62 and 254 metres, and in width between 3 and 10 metres. Depths of 3-4 metres are recorded only for two mass graves, 2 and 5. They were filled with grey soil, burnt waste and ground human bones. It is worth noting that small objects belonging to the victims were found in Grave 1, and this indicates, according to Pawlicka-Nowak (2004b:60), that people were buried with their clothes, probably during the first stage of extermination (January 1942).

The crematoria are different in shape and size, but the sediments which fill them are basically the same: soil, with the inclusions of burnt waste, ashes and bone fragments (Pawlicka-Nowak, 2004a: 19-21), very similar to the sediments of the graves. In three out of the four crematoria fragments of concrete pipes, used to let fresh air into the furnace and chamotte bricks were also found. The field furnaces are about 7 to 9 metres in diameter and 3 to 5 metres deep. Their fill is similar to the fill of the crematoria and includes bricks and concrete pipes (Pawlicka-Nowak, 2004a: 19-21: 18-19). It appears that the crematoria were located in closed structures and the field furnaces were open air pits.

## **2. The excavations of Bełżec**

Bełżec, 40 km south of Zamość, is one of the three *Einsatz Reinhardt* extermination centres and was active in 1942-1943 (Fig. 1). It was obliterated after the cremation of bodies had ended in the summer of 1943. It is agreed by most authorities that about 600,000 Jews were murdered at Bełżec, although this figure has been recently challenged (see the controversy between O'Neil, 1999, and Pohl and Witte, 2001). The site was excavated during the years 1997-1999, before turning the entire site of Bełżec into a large-scale memorial. After the excavations had been finished, the site was covered and totally modified to accommodate the monument that was inaugurated in 2004 (Fig. 7). The excavations of Bełżec were carried out by a team headed by A. Kola of the University of Toruń. In addition to the report published by the Polish group (Kola, 2000), data related to the archaeology of Bełżec was also published by R. O'Neil (2007, O'Neil, 1998, O'Neil, 2004: Ch. 15).

The archaeological research at Bełżec was carried out by means of two techniques: drilling and excavations of structures. Drilling was performed by manually coring with a probing drill, 65mm in diameter, down to depths ranging between 6 and 8m. A 5x5m grid was laid on the entire site and the corner of each square was drilled. In 1997-1998, when this method was used, 2227 probes were taken, of which 137 were published (Kola, 2000: Figs: 12-16). The results suggest to Kola that there are three types of below surface occurrences: virgin soil (mostly sand), mass graves, and disturbances, either edges of graves or structures/installations (*ibid*: 70).



**Fig. 7:** Belzec, the site-monument.

The mass graves (Fig. 8) are up to five meters deep and their fill consists mostly of charcoal and cremated remains. About a fifth of the graves also contains decomposing corpses in the state of wax-fat transformation. Grave 10 is one of the biggest (24x18m) and the deepest (5.2m). It consists mainly of decomposing corpses, and at the depth of 4.4m there is a layer of lime. Lime is found in other graves too and was probably used to accelerate decomposition. Mass grave 5, 32x10x4.5m, is also one of the largest graves, but it contains only layers of burnt human remains. The burnt fill is separated by sterile sand indicating multiple filling. The drilling and the analysis of sediments suggest to the archaeologists that when the centre was eliminated, there were 33 mass graves. Kola distinguishes between two groups of graves: the first and probably the earlier one, consisting of twenty-one graves clustered in the western and north-western part of Belzec, and the others in the north-eastern section of the site (Kola, 2000: 38-40).

In several cases the sediments recovered from the drilling suggested that in certain places there were remains of buried structures. To unearth them, more standard methods of excavations were used. Kola describes the results of excavating eight structures (buildings A-H): the preservation of most structures was poor, and the finds associated with them meagre. However, structures D and G (Fig. 8) are of interest because Kola suggests that they could be gas chambers: in his opinion, building D was, or was related, to the early gas chambers which operated between March to June 1942, and building G accommodated the gas chambers used between July to December 1942.

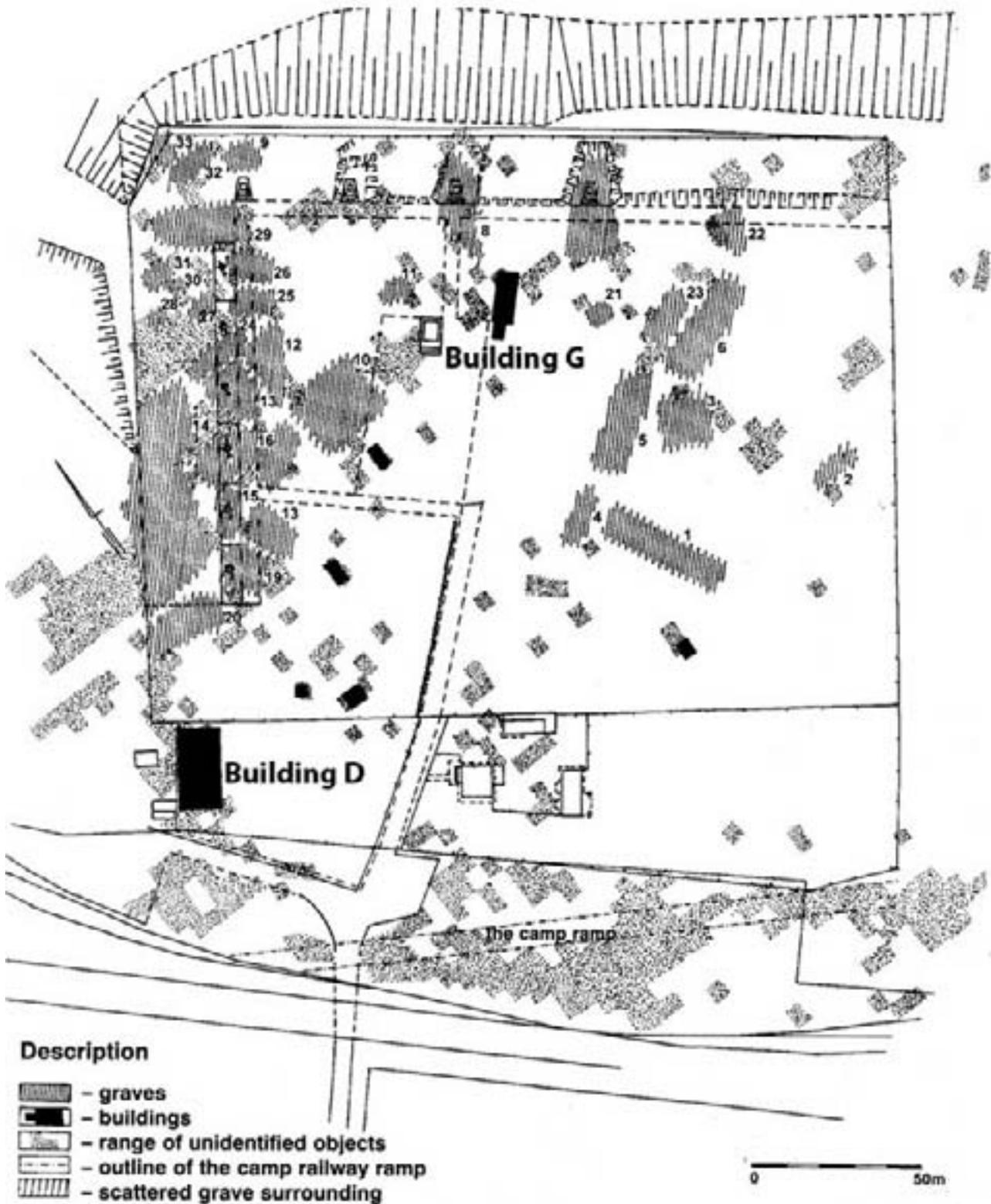


Fig. 8: Plan of mass graves and structures at Belzec (after Kola 2000: Fig. 17).

Building G is, in fact, a negative of a wooden structure, a rectangle of 15x3.5m. Tar paper, iron nails, fragments of dentures, women's combs and two Polish grosz coins were associated with it. Kola's interpretation of the structure is unequivocal: 'The wooden building served probably as a gas chamber in the second stage of the camp functioning...such an interpretation could be confirmed by its [building G] location in the camp plan' (Kola, 2000: 61). The case of building D, the alleged gas chamber of the first phase, is more complicated.

Building D is located in the south-western section of Bełżec and is the biggest and best-preserved complex of the site. It is 26x12m in size and consists of six equal rooms, the northern one featuring a built 'hole', a canal which served originally to repair cars (Kola, 2000: 54-58). Numerous objects were unearthed in building D, including comb fragments, medicine/perfume bottles, gun shells, cutlery, metal boxes and pots, elements of rail fastening and more. Worth noting is a collection of 304 concrete discs of a yet unknown function, 6cm in diameter and 1cm thick, with a hole for hanging, and five digits carved in the centres (Kola, 2000: Figs 113-115). Similar pieces, made of aluminium and with four digit numbers, were unearthed at Chełmno, mostly in conjunction with mass grave two in the Rzuchów forest (Pawlicka-Nowak, 2004b: 62).

Kola devotes two paragraphs and one figure to the description and interpretation of building G. In contrast, he dedicates four pages and four figures to building D, but offers no interpretation. Only in the concluding section of the report (Kola, 2000: 65-69) does he wonder if it could have been the death chamber of the first phase. His relatively long discussion finishes with a dubious conclusion:

In the light of the studies no traces of the gas chamber from the 1st stage of the camp functioning were found. The traces of a wooden building [G] in the central part of the camp can be hypothetically regarded as the remains of the 2nd stage gas chamber (Kola, 2000: 69).

The suggestion that building G is the gas chamber of the second phase contradicts the historical evidence and therefore arouses reservations on methodological grounds. There is no doubt that building G was a wooden structure. However, historical sources indicate that the gas chamber of the second phase was built of concrete. According to Reder (1999: 122), one of the two survivors of Bełżec, 'the building containing the chambers was low, long and wide, gray concrete with a flat roof covered in tar paper...'. Another witness, Pfannensstiel, the hygiene advisor to the Waffen SS, visited Bełżec in August 1942 and later stated that 'the building that housed the gas chambers was made of concrete...' (quoted in Arad, 1993:130). Kola, who is aware of Reder's report, flatly rejects it in a footnote and labels it 'unreliable' (Kola, 2000: 61). In the summary (*ibid*: 69) he states that 'Reder's information, that the building was made of concrete, does not seem to be convincing, because no traces of concrete objects were spotted in the central part.'

The downright rejection of Reder's observation (and that of Pfannensstiel) is methodologically problematic, and it is profitable to discuss this point in the framework of historical archaeology. It is generally agreed that one of the challenges facing the historical archaeologist is the artefact/text dichotomy. When they are in accordance, reconstruction of past events is safer, but what about apparent (or alleged) contradictions? If contradictions are apparent and real, we are talking about spaces between or within artefact and text, about *dissonances*, that may reveal additional aspects hitherto unknown (Galloway, 2006: 42-44). However, to establish if in a given case dissonances exist, the nature and quality of the evidence, of both the archaeological and the historical data, should be re-examined carefully. Kola does not re-examine the credibility of Reder or Pfannensstiel, or the feasibility of their observations before rejecting them. It is not our intention to critically review the testimonies of Reder and Pfannensstiel; we leave it to professional historians. We can, however, comment on the archaeological evidence and interpretation.

Kola's interpretation is based on two arguments. The first one is the fact that building G is

located near the mass graves. The distance is in the eye of the beholder, since a gas chamber could be found 20-30m west or south to building G, and still be near the mass graves (Fig. 8) (Kola, 2000: Fig. 17). The second argument concerns the tar paper. The fact that tar paper was found in building G is used by Kola to interpret it as a gas chamber, because tar paper was noticed by Reder on the roof of the new gas chamber (*ibid*: 69). We cannot find a reason not to trust Reder's specific observation, but we are sure that this does not imply that the use of tar paper was restricted to the gas chamber only. On the contrary, there is ample evidence that tar paper was used intensively in Poland in the construction of barracks in general and wooden barracks of Nazi concentration and extermination centres in particular. In Treblinka, for example, the survivor Samuel Willenberg (1992: 139) notes that "Instead of having us clap a tar-covered roof on the new building, like those of the other buildings of the camp, the Germans ordered one of cast concrete." That tar paper was brought to Bełżec and used to cover the roofs of wooden structures is highly probable, and thus building G is a remainder of such a structure. Since there were many wooden structures, covered, most likely, with tar paper, the claim that building G is a gassing installation cannot be substantiated. The problems of identifying gas chambers archaeologically will be discussed below in relation to the recent research at Sobibór.

### **3. The 2000-2001 excavations at Sobibór**

A team lead by A. Kola excavated the Sobibór extermination centre in 2000-2001 (Kola, 2001). The archaeologists used the same methodology that was used for excavating Bełżec. By drilling they defined the contours of seven mass graves and then uncovered the remains of five structures/installations ('objects'). These results form the background for the discussion of the 2007 excavations carried out by us at Sobibór.

## **Summary of recent research at Sobibór**

### **1. The history and structure of Sobibór**

The original wartime documents concerning Sobibór (as well as Bełżec and Treblinka) are scarce, and their types and contents are summarized by Browning (1999, and see below). An important addition to this evidence is the so-called Höfle Telegram (Witte and Tyas, 2001), a recently declassified document at the Public Record Office in Kew, U.K. This telegram was sent on January 11, 1943 by SS major Höfle to SS Lieutenant Colonels Eichmann and Heim, and was intercepted and decoded by the British intelligence. The short telegram lists the number of exterminations carried out at the *Einsatz Reinhardt* sites till the end of 1942. Its importance lies in the fact that it is the only known document that lists the numbers of murdered Jews at each of the centres. According to this document, 101,370 people were exterminated at Sobibór, 434,508 at Bełżec and 713,555 at Treblinka (Witte and Tyas, 2001: 469-470).

Our summary of the history of Sobibór and its spatial organization is largely based on the works of Arad (1987), Ruckerl (1977) and Schelvis (2007). The construction of the Sobibór extermination centre started in March 1942, and the first transports arrived in the first days of May 1942. In August 1942 the extermination temporarily stopped for railway repairs. This interruption was also used to modify elements of the centre and construct new gas chambers. The extermination resumed in October 1942, after modifications had been completed. In February / March 1943 Himmler visited Sobibór and decided to eliminate the *Einsatz Rein-*

*hardt* centres. However, several months later, in early July, he decided to transform Sobibór into a concentration camp, a depot for captured ammunition. The construction of structures for this purpose, in a part of Sobibór known as camp IV, or the 'northern camp', started immediately. On October 14, 1943, the inmates revolted and about 300 prisoners escaped. About 50 survived the war. The plan to use Sobibór as an ammunition depot was cancelled and the site was obliterated in November 1943. It is estimated that between 170,000 (Schelvis, 2007: 198) and 250,000 (Arad, 1987: 177) Jews perished at Sobibór.

Sobibór consisted of five camps, all of them within the area encircled by the barbed wire fences and mine fields (Fig. 9). First was the *Vorlager*, or fore-camp, with the houses and the barracks of the SS men and the Ukrainian auxiliaries. The principal structure of the fore-camp was the house of the commandant. The 'conveyor belt' process (Hilberg, 1985: 967-976) of extermination at Sobibór started on the train ramp facing the fore-camp. Here, the disembarking Jews were told that they had arrived in a transit camp and were to take a bath on their way to places of resettlement. The sick and the old were separated and taken to the 'Lazaret' where they were immediately shot. The rest, leaving their luggage on the ramp, were taken for undressing to camp II, north of the fore-camp, where all their personal belongings were taken away. In the storehouses of camp II sorting, processing, packing and storing the loot was carried out by Jewish slave workers who lived in Camp I, north to the fore-camp and south of camp II.

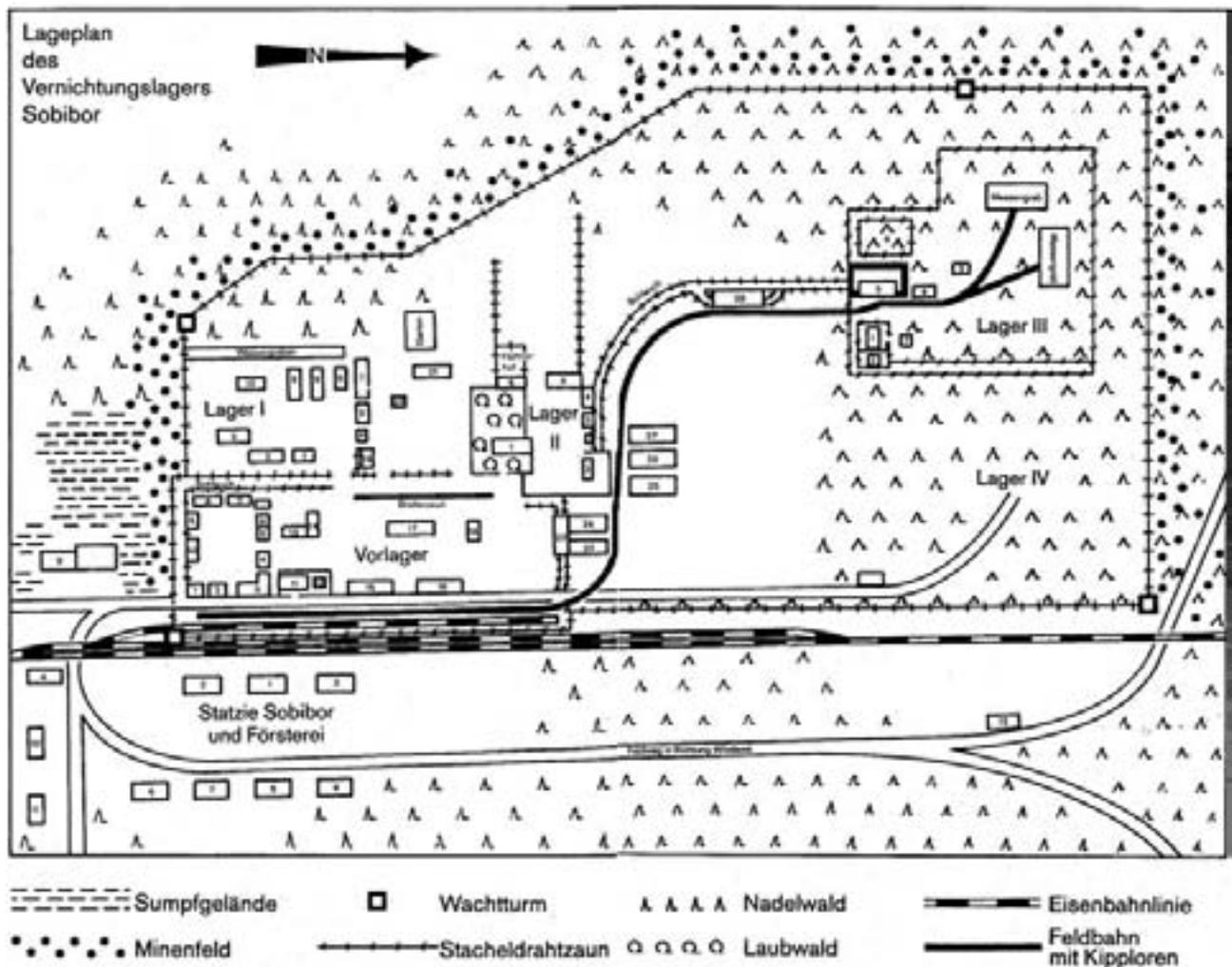


Fig. 9: Plan of Sobibór after E. Bauer (from Rückerl, 1977: 160-161)

From camp II the naked victims were brutally driven towards camp III via a lane concealed from camps I and II by high fences of barbed wire interwoven with tree branches. This lane, known as the *Schlauch* (Hose) or *Himmelfahrtsstrasse* (the Way to Heaven) terminated in the gas chambers at camp III (Fig. 9). The men were driven directly to the gas chamber. The women were first taken, via a short branch of the *Himmelfahrtsstrasse*, to a barrack near the gate where their hair was shorn, from where they were sent to the gas chambers. When the gas chambers were filled with victims, the gas was vented into the rooms asphyxiated the victims in about 20-30 minutes. Before being buried, the bodies were searched for valuables and gold teeth were removed. During the first phase of operation, about 80,000 bodies were buried in large pits. In autumn 1942 a different way of body disposal was introduced. Bodies were taken for cremation by narrow-gauge rail carts from the gas chambers to grids made of old railway tracks. After cremation and crushing the larger bone fragments, the ashes were buried in pits. The mass graves were in camp III, adjacent to the gas chambers. Camp III also contained the barracks of the Jewish slaves who worked at the gas chambers and pyres, none of whom survived, and of the Ukrainian auxiliaries. The fifth camp, camp IV, has been already mentioned above and it will be discussed in more detail below.

## 2. The documentary background

None of the few extant official documents refers in any way to physical elements of Sobibór that are relevant to archaeology, such as structures, their layout, or artefacts. That such documents existed is certain: Odilo Globocnik, the commandant of the *Einsatz Reinhardt* showed Franz Stangl, the first Sobibór commandant, plans of Sobibór in early spring of 1942 in Lublin (Sereny, 1983: 103). Testimonies of German staff members are also sketchy; the SS men hardly described specific features, but for general references to the plan of Sobibór and its five sub-camps. The structure of the first gas chamber from April 1942 is described in a few brief sentences ‘...close to the railroad station I saw a track of land with a concrete construction and some other solid buildings...We installed the engine on a concrete foundation...’ (testimony of the SS soldier E. Fuchs who installed the first gassing engine at Sobibór, in Arad, 1987: 31). Stangl, the first commandant of Sobibór, hardly refers to particular buildings. As noted above, he was familiar with the blueprint of Sobibór while it was built, and participated in its construction. The only structure he refers to in the construction process is ‘...a new brick building with three rooms, three metres by four...it looked exactly like the gas chamber at Schloss Hartheim.’ (Sereny, 1983: 109). In another testimony, however, E. Bauer, known as the *Gasmeister* (Gas master), stated that ‘The gas chamber was already there, a wooden [*sic*] building on a concrete base...’ (in Schelvis, 2007: 101).

The memories of the survivors constitute an important set of documents that is essential for the understanding of the history and archaeology of Sobibór. It is noteworthy that the corpus of these memory narratives has increased in recent years. The Włodawa-Sobibór museum, for one, is currently publishing a series of memoirs, some of which have already been published before (Blatt, 2008, Ticho, 2008, Wewryk, 2008, Zielinski, 2008). There are additional memoirs, testimonies and studies written by Sobibór survivors published recently, as well as decades ago (Blatt, 1997b, Freiberg, 2007, Novitch, 1980, Rashke, 1995, Schelvis, 2007). Browning (1999), notes that

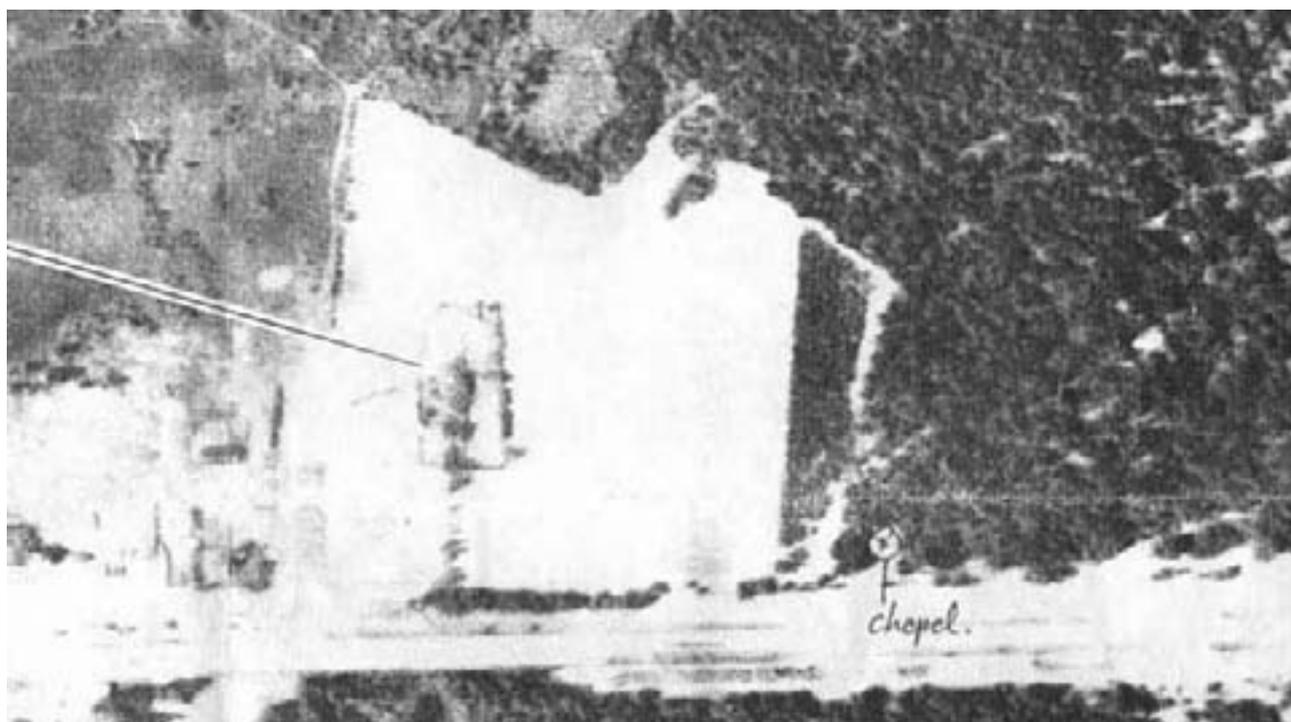
...human memory is imperfect. The testimonies of both survivors and other witnesses to the events in Bełżec Sobibór, and Treblinka are no more immune to forgetfulness, error, exaggeration, distortion, and repression than eyewitness accounts of other events in the past...how-

ever, without exception all concur on the vital issue at dispute, namely that Bełżec, Sobibór, and Treblinka were death camps...

The problems of human memory that Browning lists affect also the recollections related to space, structures and artefacts, so important in archaeology. Perpetrators and dozens of survivors left Sobibór in late 1943 and only a handful returned to visit the place decades later. The locals were unfamiliar with the inner structure of the site and could go there only after the area was totally levelled and replanted. For survivors, it is not easy to recognize specific locales while walking in the present day forest of Sobibór, with no familiar structures for orientation, decades after the site was erased. Probably this is why Gitta Sereny (1983: 117) who visited Sobibór in 1972 states that the mound of ashes was the place where the Sobibór gas chambers stood, while Martin Gilbert (1997: 250) identifies the location of the gas chambers where the monuments are, more than 100m to the south of the ash mound.

Images, mainly photos, maps, plans and air photographs are invaluable documents, the potential of which has not yet been fully exploited. As is the case with other types of World War II documents, there are few images of Sobibor. In fact, from March 1942 to November 1943 there are a number of photographs which do not contribute significantly to the archaeological research of the site. Sobibór photos in books and articles are very rare and the largest number of images available is the on line collection on the web site of the Ghetto Fighters House (GFH) (<http://www.infocentres.co.il/gfh>). Most of the Second World War pictures here are of poor quality and their provenance and authenticity are not always known.

Two air photographs of Sobibór taken by the *Luftwaffe* are of importance: one from 1940, before the extermination centre was constructed (Fig. 10), and the second one from 1944, after the site was eliminated and the area re-forested (Fig. 11). Recent air photographs (e.g., 2005) are instrumental in attempts to locate old features appearing on the 1940 and 1944 photos, in the present day forested terrain (see below).



**Fig. 10:** Aerial photo of the future extermination centre at Sobibór, 1940 (from ARC [www.deathcamps.org](http://www.deathcamps.org), <http://www.deathcamps.org/sobibor/pic/bmap16.jpg>)



**Fig. 11:** Aerial photo of Sobibór in 1944 (National Archives, Washington DC; courtesy of Alex Bay).

### **3. The 2001 excavations at Sobibór**

As mentioned above, the site of Sobibór was excavated in 2001 by a team directed by A. Kola (Kola, 2001). The archaeologists used the same methods that were used in the 1997-1999 excavations of Bełżec. Two main features were discovered (Fig. 12): seven mass graves in varying sizes in the area surrounding the ash mound and a number of structural remains south of them, adjacent and to the west of the asphalt paved lot where the monument is located. Building E is the largest and the most significant structural assemblage uncovered. It is about 60m long and is located in the south-west section of the area tested. It is interpreted as an undressing room where the clothes and belongings of the victims were processed (Kola, 2001: 121). We will discuss Building E further in the section below. For the moment, it is worth noting that in the current plans for future development of the site, this archaeological feature is interpreted as the gas chambers (Bem, 2006).

### **4. The 2007 season**

In October 2007, acting on the assumption that we knew roughly where the gas chamber was located, we decided to dig first in the area bordering the west of Kola's Building E. We worked in 5x5m squares which correspond to Kola's grid, screened all the sediments we dug and used soft hair brushes to clean the surfaces we exposed. The sediment we excavated was sand, heavily mixed with ashes and burnt materials and artefacts. It was approximately 10cm deep and overlaid deep layers of sterile sand. The nature and the extension of the archaeological deposit and the types of artefacts embedded in it indicate that the part of Sobibór we excavated is neither the gas chamber nor the undressing barrack.

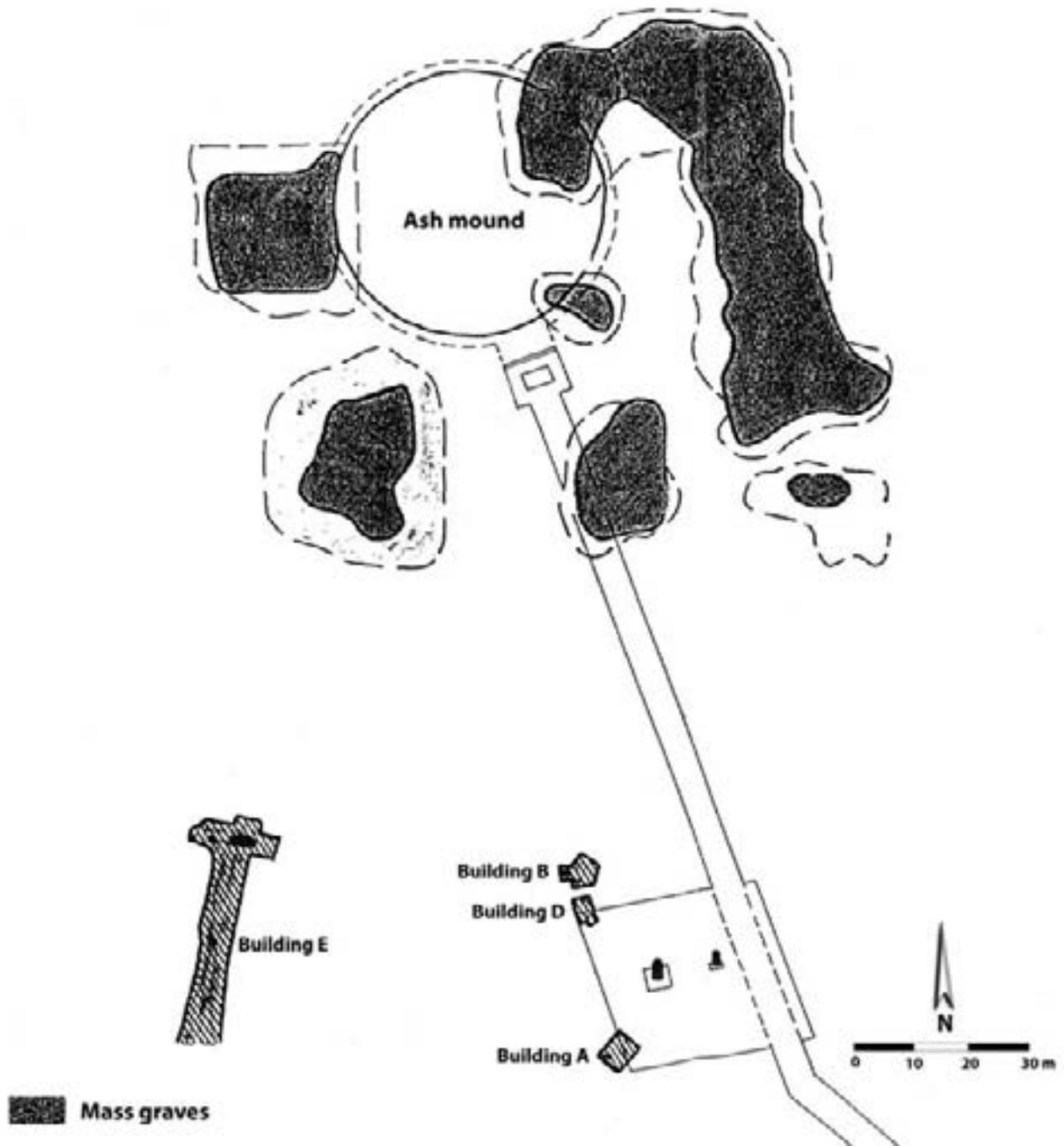


Fig. 12: Plan of the 2000-2001 excavations at Sobibór (after Kola, 2001: 122).

The most important features we unearthed were two black parallel lines (feature F) consisting of black and grey ashes, burnt wood fragments, and whitish material, probably ash as well (Fig. 13). These could have been remains of camp fences, a suggestion supported by the fact that in the debris of this part of the site we recovered hangers for security fencing (Fig. 14).



Fig. 13: Sobibór 2007 excavations, feature F.



Fig. 14: Sobibór 2007 excavations, hangers for security fencing (photo by Yehudit Heymans).

We recovered about 1,000 artefacts that do not seem to be associated with gas chambers. They included a wide assortment of artefacts made of different raw materials. Most common were artefacts made of metal. In addition to hangers of security fencing, there were also fragments of barbed wire, as well as nails and a peg of a narrow-gauge railway. Bullets and bullet cartridges were also found, one of them even bearing the year of production, 1938. The bullets were deformed by fire. Also of note were an element of a door lock, scissors, knives, spoons, belt buckles, cigarette lighters and fragments of metallic cigarette cases (Fig. 15). There were many glass artefacts, including numerous fragments of bottles and jars. Many small bottles were most probably containers of perfume or medicines, while larger jars, some of which produced in the Netherlands, could contain disinfectants. We also uncovered fragments of dentures and glasses of spectacles.



**Fig. 15:** Sobibór 2007 excavations, a fragment of a cigarette case.

Similar collections of artefacts were retrieved in other extermination centres, as well. Numerous scissors, knives and spoons, for example, were reported from Bełżec (Kola, 2000: Figs. 86-88, 93, 112-114, 11). Glass bottles and jars were also common in Bełżec (Kola, 2000: Fig. 90-91), where cigarette cases were found as well (*ibid*: 95, 97). Comparable artefacts are also known from Chełmno. Only the unique items from the Chełmno collections are published (Pawlicka-Nowak, 2004b), such as jewellery and a cigarette case (see above, Fig. 4), but numerous everyday artefacts, such as cutlery, nails, plates, glass bottles and jars were also unearthed there. As mentioned above, numerous such artefacts are exhibited in the museums at Chełmno and the Imperial War Museum in London (see above, Fig. 5).

## **5. The geophysical evidence obtained in 2008**

A one-week season in July 2008 was devoted to acquiring geophysical data. The work was carried out under our guidance by Paul Bauman and Brad Hansen of Worley Parsons Resources and Energy (Calgary), and Phillip Reeder of the University of South Florida. The geophysical team was organized and coordinated by Richard Freund of the University of

Hartford. The following methods were used to acquire the data: EM61 High Resolution Metal Detection, GEM19 Overhauser GPS Magnetic Gradiometer, EM38 Terrain Conductivity Meter, Ground Penetrating Radar, Low Altitude High Resolution Aerial Photography, and GPS Mapping (Bauman, 2008).

The geophysical work was carried out in two areas of the site: in the open field south of the ash mound monument, where the mass graves are, and in eight 20x20m squares placed immediately south and east of the area excavated by us in 2007. In addition, low altitude aerial photography was carried out over the major part of the original perimeter of the site. GPS data were collected at various locations in the site and in the Sobibór train station and ramp. The results are being evaluated now and we can already discern the archaeological potential of different locales (Bauman, 2008). The low altitude photography from a weather balloon of the open field immediately to the south of the ash mound is illuminating (Fig. 16). It appears to have delineated areas of mass graves in the open field, as defined by deeper green hues in the vegetation. This supports the conclusion of the 2001 coring activities carried out by Kola's expedition (Fig. 17). It is possible that this conclusion will be further corroborated by the processing of several GPR profiles conducted across these tentatively identified mass graves. The aerial photographs also appear to distinguish areas of Sobibór from surrounding forest by the subtle but clear change in tree canopy height and homogeneity (Bauman, 2008: 9).



**Fig. 16:** Sobibór 2008: areas of mass graves in the open field around the ash mound, as defined by deeper green hues in the vegetation (courtesy of Paul Bauman, Worley Parsons).

## 6. Discussion

We have mentioned above, following Browning (1999), the difficulties inherent in the available data concerning the spatial nature of Sobibór as an archaeological entity. The original blueprints of the site as drawn by its planners and builders were never recovered and they may be lost. It is, however, certain that such plans existed since Stangl mentions them (Sereny, 1983: 103). A blueprint of Sobibór may be recovered in the future, but until then reconstructions of Sobibór rely on memories, most of which were turned into plans only decades later. About twenty different plans of Sobibór are known today, ranging from the one produced by the post war Polish investigation committee (Lukasziewicz, 1947), to the more recent plan of Rutherford (2002) and the Sobibór memorial map (Bem, 2006). Current research reveals more plans, especially documents from the former Soviet Union. For example, we have recently examined a 1944 plan of Sobibór, drawn by two Ukrainian auxiliaries who escaped Sobibór a short time before the revolt. A copy of the plan is deposited in the Yad Vashem archives.

It is not easy to evaluate the relationships between the different plans. In order to partially overcome the problem, we compare plans by projecting them on the most recent air imagery we have, a 2005 air photograph kindly given to us by ImageSat International (Fig. 16). On this air photograph the asphalt road leading to the site, the Chełm-Włodawa main railway, and the rail siding that leads to the ramp of Sobibór are seen quite clearly. The commandant's house facing the ramp is also visible, as well as the main structures and the monuments of Sobibór. Since all the plans of the extermination centre feature the main railway, its siding, the road and the ramp, we can roughly calibrate the projections.

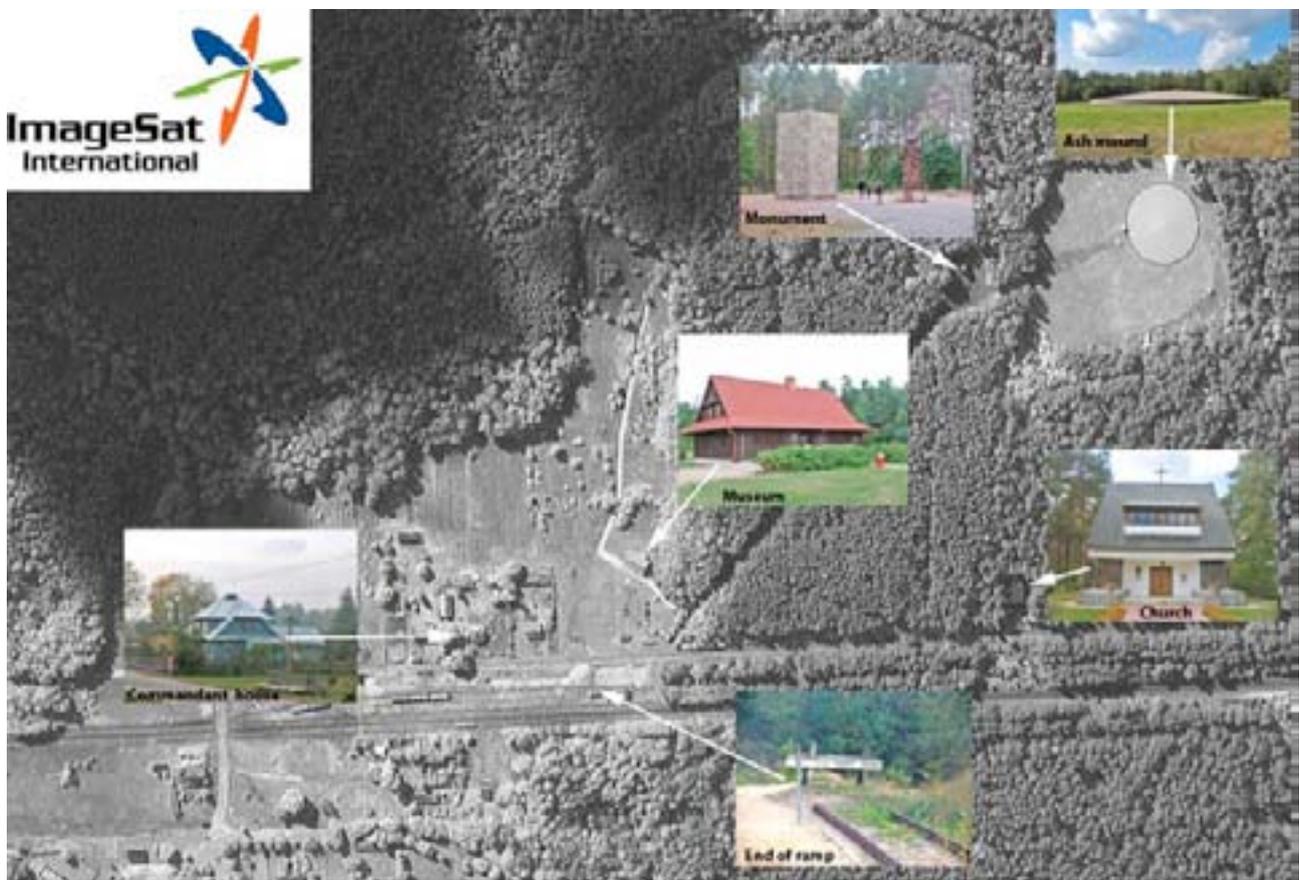


Fig. 17: Recent aerial photo of Sobibór and the main features at the site (aerial photo courtesy of ImageSat International).

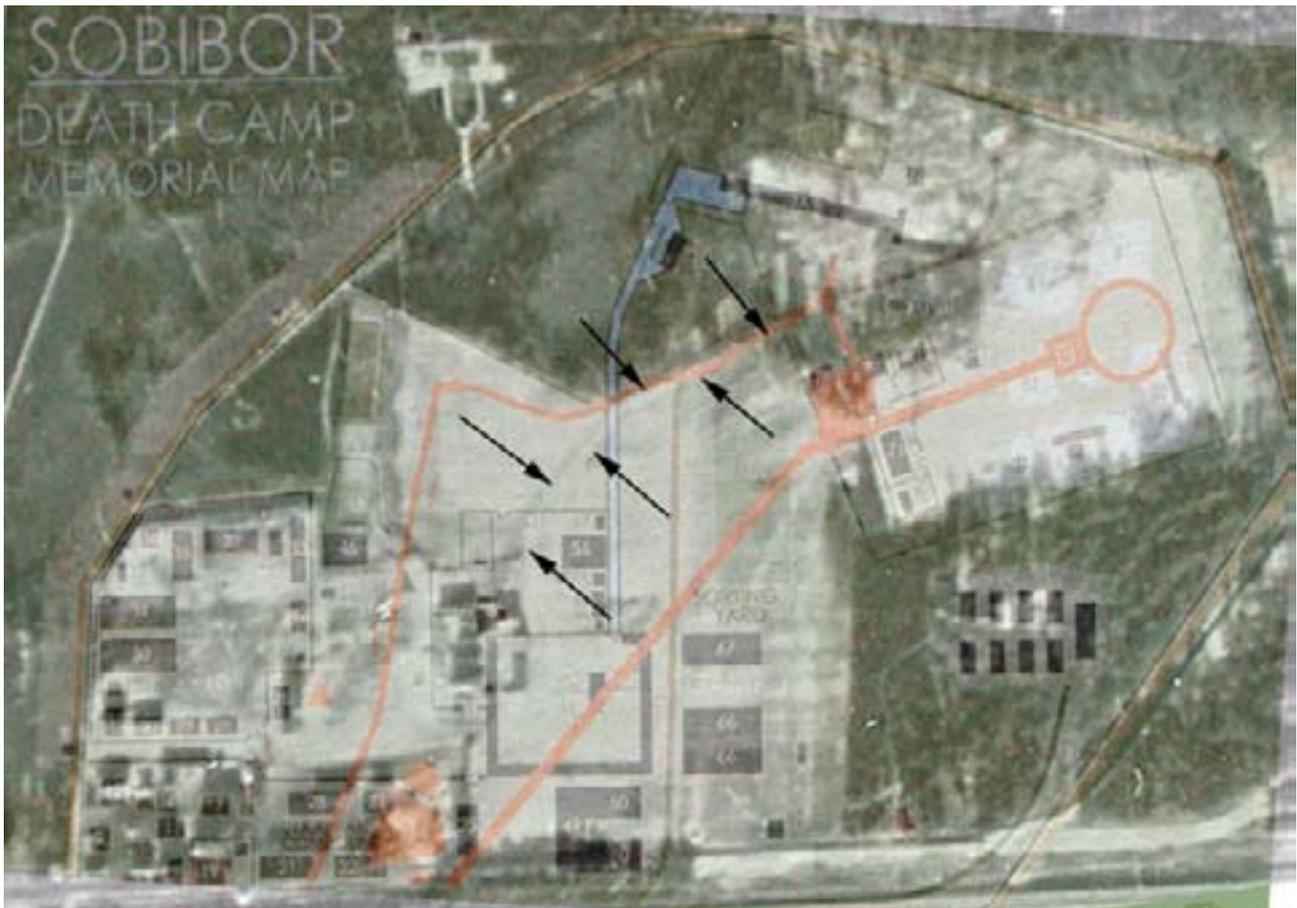


**Fig. 18:** The 1947 plan of Sobibór (after Lukasziewicz, 1947) projected on the modern aerial ImageSat photo.

The 1947 plan of Sobibór (Fig. 18) was prepared by the Commission for Investigation of Hitlerite Crimes in Poland on the basis of field observations and testimonies of local inhabitants. The site was then undoubtedly less disturbed than now and the memories fresher. It differs, however, from all the other plans that are in use today. One of the main differences is that on later plans, the gas chambers are located almost two hundred metres to the north-east of the place indicated on the 1947 plan. This is obvious when we compare the 1947 location with the next major plan of the mid- 1960s, by *Gasmeister* E. Bauer (Fig. 9), who was undoubtedly familiar with camp III features (Rückerl, 1977: 160-161). A number of plans, mainly from the 1980s and the 1990s follow Bauer with minor modifications (Arad, 1987: 34-35, Blatt, 1997a: XXIV-XXV, Schelvis, 2007: Plate 24). The most recent plans, mainly from the 2000s, are different in two aspects: the size of the site and the location of the gas chambers (Bem, 2006, Rutherford, 2002). The change is due to the release of the air photographs of 1940 and 1944, which allow the precise definition of the contours of the extermination centre. It is obvious now that Sobibór was larger than suggested by the pre-2000 plans.

The shift in the assumed location of the gas chambers is significant since it deals with a methodological issue of considerable bearing for the archaeology of extermination centres in general. As mentioned above, the most important structure discovered during the dig of Kola is Building E. Although Kola suggested that this structure was the undressing barrack (Kola, 2001), in later reconstructions it appears as the gas chamber. The Sobibór booklet

(Bem, 2006) includes a map labelled 'Sobibór Death Camp Memorial Map'. It consists of a combination of the present day structures and monuments of the site, with the suggested reconstruction as their background (Fig. 19). The 'Memorial Map' identifies the Sobibór gas chambers with Building E, which in Kola's opinion served as undressing complex. Rutherford (2002), follows this map in placing the gas chambers in the same place, although the structure he reconstructs is different in shape. It is obvious that the location of the gas chambers is a complex issue that has to be solved, an important objective for future archaeological research at Sobibór.



**Fig. 19:** The 1944 aerial photo with the probable path that signifies the *Himmelfahrtsstrasse* (along the black arrows), and the "Memorial map" (Bem, 2006) where the suggested *Himmelfahrtsstrasse* (in blue) terminates in the suggested gas chambers (structure 74).

The 1947 plan is the starting point for considering another unsolved spatial-archaeological issue. According to this plan (Fig. 18), a fence separated the compound of gas chambers and mass graves from an area of about 200x130m to its north, defined as 'labour camp' and 'workshops'. Such a feature does not appear on any other later plan we are familiar with. However, it brings to mind the term 'Northern Camp', an alternative designation for Camp IV. As mentioned above, this camp functioned for several months in summer 1943 as a depot for captured ammunition before the revolt. On all the plans available currently, excluding one to be mentioned below, the 'Northern Camp' is located in the area east of Camp III, west of the chapel and the 'Lazaret'. In fact, from the perspective of the inmates of Camps I and II

there were two camps to their north, Camp III to the north-west and Camp IV to the north-east. The use of the term 'Northern Camp' as designation of Camp IV is therefore worth particular consideration. If indeed the remains of the labour camp in the northernmost part of Sobibór were discernable in 1945-1946, it is possible that these were the remains of Camp IV, which could be described as the 'Northern Camp'. Alex Bay (personal communication) is currently attempting to use air photographs to locate structural remains north of the mass graves, which may prove to be Camp IV.

Still, one should not easily dismiss the current location of the camp IV between Camp III in the west and the chapel in the east. It is based, among other things, on plans drawn by two well known figures in the history of Sobibór, Erich Bauer and Alexander Pechersky. Erich Bauer, an SS man, was considered a 'reliable' witness by the Hagen judges (Schelvis, 2007: 247). He served at Sobibór for about a year and half, and in the days before the revolt he was a truck driver. He must have been very familiar with the different parts of Sobibór. The plan drawn by Pechersky, and his model, also place Camp IV to the east of Camp III. Pechersky, who worked at Camp IV (Schelvis, 2007: 93), planned the Sobibór revolt, led it, and probably had good spatial orientation. The location of Camp IV according to Pechersky is even more complex, since in the map used by *Encyclopedia Judaica*, Camp IV is to the north of Camp III and it is claimed that this map is based on a drawing by Pechersky (Dombrowska and Berenbaum, 2007:701). Still, the area north of the mass graves features remains of destroyed structures and earthworks, and an archaeological study of that part of the site can contribute to a better understanding of the layout and history of Sobibór.

## Conclusions

Of the four Nazi extermination centres very little is known archaeologically. Treblinka has never been excavated and the entire site is now a monument. Bełżec was mostly surveyed by drilling immediately before the entire site turned into a monument. Thus these two centres, where at least 1,300,000 Jews were exterminated, cannot be excavated. In contrast, Chełmno was excavated and yielded numerous artefacts. However, since in Chełmno the entire process of gassing was carried out in a couple of gas vans operating near a large structure, and the disposal of bodies took place elsewhere, it clearly differs from the *Einsatz Reinhardt* centres. Sobibór remains therefore the only extermination centre where archaeological excavations can be carried out. Although some structures have been erected there, such as the monuments and the local museum, the area they occupy is very limited. Camps I and II are accessible for excavations, and test pits can be opened anywhere in these areas. The area of Camp III is dominated by the ash mound surrounded by the mass graves. This part of the site should not be excavated, but rather studied by means of remote, non-invasive imaging techniques only (see above). Despite the mass graves, and the two monuments to their south, the south-western section of camp III where the gas chambers and associated structures were situated is large enough for future archaeological research. The area of the fore-camp is inhabited and cultivated now by local farmers, but if it turns into part of the Sobibór memorial site it may be excavated as well. In addition, the Sobibór train ramp also has to be examined archaeologically, when it becomes part of the memorial.

Sobibór apparently has an enormous archaeological potential and it is important to excavate the site for a number of reasons. The available evidence, mostly oral history based on survivors' recollections, is imprecise, and in a number of cases it contains spatially disoriented information. Survivors who lived and worked in Camps I and II cannot indicate the

exact location of the gas chamber, because they have never seen the inner part of Camp III, where the gas chambers were situated (seeing it implied instant execution). Location of the gas chambers can be established only by archaeological methods including geophysical research and remote imaging. Thus an important contribution of the archaeological research at Sobibór would be an unbiased reconstruction of the plan of an *Einsatz Reinhardt* extermination centre, a plan still unavailable.

The study of structures, their spatial organization and the way they formed a functioning assemblage is only one aspect of the archaeological research. To recover artefacts from Sobibór is another important reason for excavating the site. Needless to say, artefacts are essential for the proper interpretation of structural assemblages that have already been unearthed at Sobibór and other extermination centres. Another group of finds are the artefacts that were brought to the site by the victims, 'manuports', and were taken away by the Nazis. These include a wide range of objects belonging to victims, ranging from clothes, eyeglasses, combs, toothbrushes, cutlery, tableware, purses, cigarette cases and lighters, to precious items such as personal and family jewellery, mementos and Judaic objects of cult. Such artefacts are essential in studying the material culture of the Jewish communities that were eliminated in the extermination centres.

Beyond the academic value of such objects, they should become part of the public domain and be exhibited in museums. There are probably thousands or hundreds of thousands of artefacts in the fields and forests of Treblinka and Sobibór, but the local museums exhibit only a limited selection. Children and adults alike are attracted by artefacts and their role and significance in teaching and education is essential (Darmanin and Mootz, 2006).

Since artefacts deteriorate in sediments, it is important to recover immediately as many artefacts as possible. Moreover, if archaeologists do not recover, protect and exhibit the artefacts they will be looted by robbers, be sold and disappear in private collections. Ongoing pillage of the extermination centres is a well known phenomenon in Poland.

We are aware of only one reference to archaeology in conjunction with memories of a Sobibór survivor, a reference that is pertinent to the archaeological research of extermination centres and preservation of artefacts there. The book *Conversations with Regina* is based on the memories of Regina Zielinski written by her son Andrew (Zielinski, 2008). Among other events, Regina Zielinski recounts the recovery of the wedding ring of her murdered mother, and dropping it through the floorboards into the sand, to hide it from the Nazis. Her son suggests that 'some post-war archaeologist may have found this memento', and then adds: 'I somehow believe it remains where she placed it so carefully, waiting to be found by an angel.' (Zielinski, 2008: 94). Regrettably, angels today, as in 1939-1945, do not fulfil human wishes, and grave looters rather than angels may find the ring, although we still hope that it is recovered by archaeologists.

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## References

- ARAD, Y** (1987) *Belzec, Sobibor, Treblinka: The Operation Reinhard Death Camps*, Indianapolis, Indiana University Press.
- ARAD, Y** (1993) "Operation Reinhard": gas chambers in eastern Poland. IN KOGON, E, H LANGBEIN and A RÜCKERL (Eds.) *Nazi Mass Murder a Documentary History of the Use of Poison Gas*. New Haven and London, Yale University Press.
- BAUMAN, P** (2008) *Preliminary Report on the Geophysical, GPS, and High Resolution Aerial Photographic Investigations Former Sobibor Extermination Camp, Poland*, Calgary, Worley Parsons.
- BEM, M** (2006) *Masterplan Sobibór: ...a place to remember ...a place to learn*, Włodawa, Muzeum Pojezierza Łęczyńsko-Włodawskiego.
- BEZWIŃSKA, J** and **G SCHINDLER** (Eds.) (2002) *KL Auschwitz Seen by the SS*, Oświęcim, The Auschwitz-Birkenau State Museum.
- BLATT, T T** (1997a) *From the Ashes of Sobibor: a Story of Survival*, Evanston, Illinois, Northwestern University Press.
- BLATT, T T** (1997b) *Sobibor - the Forgotten Revolt*, Issaquah, WA, HEP.
- BLATT, T T** (2008) *From the Ashes of Sobibor: a Story of Survival*, Włodawa, Muzeum Pojezierza Łęczyńsko-Włodawskiego.
- BROWNING, C R** (1999) *Evidence for the Implementation of the Final Solution*, electronic addition. <http://www.holocaustdenialontrial.com/trial/defense/browning>.
- BUDZIAREK, M** (2004) Marked by the "Breath of Death". Jewish jewellery found in the Kulmhof extermination center IN PAWLICKA-NOWAK, Ł (Ed.) *The Extermination Center for Jews in Chełmno-on-Ner in the Light of Latest Research, Symposium Proceedings September 6-7, 2004*. Konin, The District Museum of Konin.
- CASELLA, E C** and **J SYMOND** (Eds.) (2005) *Industrial Archaeology Future Directions*, New York, Springer.
- CHEETHAM, P, M COX, A FLAVEL, I HANSON, T HAYNIE, D OXLEE** and **R WESSLING** (2007) Search, location, excavation, and recovery. IN COX, M, A FLAVEL, I HANSON, J LAVER and R WESSLING (Eds.) *The Scientific Investigation of Mass Graves*. Cambridge, Cambridge University Press.
- CONNOR, M** (2007) *Forensic Methods Excavations for the Archaeologist and the Investigator*, Lanham MD, Altamira Press.
- COSSONS, N** (Ed.) (2000) *Perspectives on Industrial Archaeology*, London, Science Museum.
- DARMANIN, M** and **D MOOTZ** (2006) *Archaeology, the classroom and the Holocaust: telling human stories*. [http://www1.yadvashem.org/education/conference2006/Daramin,%20Margaret\\_%20Mootz,%20Denis.pdf](http://www1.yadvashem.org/education/conference2006/Daramin,%20Margaret_%20Mootz,%20Denis.pdf), Retrieved on December 14 2008.
- DOMBROWSKA, D** and **M BERENBAUM** (2007) Sobibor. IN BERENBAUM, M and F SKOLNIK (Eds.) *Encyclopaedia Judaica*. Gale Virtual Reference Library, Macmillan Reference USA.
- EVANS, R J** (1997) *In Defence of History*, London, Granta Books.
- EVANS, R J** (2002) *Telling Lies about Hitler*, London New York, Verso.

- FREIBERG, D** (2007) *To Survive Sobibor*, Jerusalem, Gefen Publishing House.
- GALLOWAY, P** (2006) Material culture and text: exploring the spaces within and between. IN HALL, M and S W SILLIMAN (Eds.) *Historical Archaeology*. Malden, MA; Oxford, Blackwell Publishing.
- GILBERT, M** (1986) *The Holocaust: the Jewish tragedy*, London, Collins.
- GILBERT, M** (1997) *Holocaust Journey Travelling in Search of the Past*, London, Phoenix.
- GLUCHOWSKI, P** and **M KOWALSKI** (2008) Gold Rush in Treblinka. *Gazeta Wyborcza*, attachment pp. 2-4, <http://rodohforum.yuku.com/reply/92506/t/Gold-Rush-in-Treblinka.html>, .
- GOLDEN, J** (2003) Remembering Chelmno. *Archaeology*, 56, 50-54.
- GOULD, R J** (2007) *Disaster Archaeology*, Salt Lake City, The University of Utah Press.
- HALL, M** and **S W SILLIMAN** (Eds.) (2006) *Historical Archaeology*, Malden, MA; Oxford, Blackwell Publishing.
- HICKS, D** and **M C BEAUDRY** (2006) *The Cambridge Companion to Historical Archaeology*, Cambridge, Cambridge University Press.
- HILBERG, R** (1985) *The Destruction of the European Jews*. Revised and Definitive Edition, New York, Holmes and Meier Publishers, Inc.
- KOLA, A** (2000) *Bełżec: the Nazi Camp for Jews in Light of Archaeological Sources: Excavations 1997-1999*, Warsaw-Washington, The Council for the Protection of Memory of Combat and Martyrdom and the United States Holocaust Memorial Museum.
- KOLA, A** (2001) Badania archeologiczne terenu byłego obozu zagłady Żydów w Sobiborze. *Przeszłość i Pamięć. Biuletyn Rady Ochroni Pamięci Walk i Męczeństwa*, 4, 115-122.
- KRAKOWSKI, S** (1993) The stationary gas vans at Kulmhof. IN KOGON, E, H LANGBEIN and A RÜCKERL (Eds.) *Nazi Mass Murder: a Documentary History of the Use of Poison Gas*. New Haven and London, Yale University Press.
- KRAKOWSKI, S** (2004) The historical outline of the camp in Chełmno-on-Ner. IN PAWLICKA-NOWAK, Ł (Ed.) *Chełmno Witnesses Speak*. Konin and Łódź, The Council for the Protection of Memory of Combat and Martyrdom in Warsaw; The District Museum of Konin.
- LACHENDRO, J** (Ed.) (2007) *German Places of Extermination in Poland*, Marki, Parma Press.
- LUKASZKIEWICZ, Z** (1947) Obóz zagłady w Sobiborze. *Biuletyn Główniej Komisji Badania Zbrodni Niemieckich w Polsce*, III, 49-58.
- MORELAND, J** (2001) *Archaeology and text*, London, Duckworth.
- NOVITCH, M** (1980) *Sobibor: Martyrdom and Revolt*, New York, Holocaust Library.
- O'NEIL, R** (1998) Bełżec—the 'Forgotten' death camp. *East European Jewish Affairs*, 28, 49-69.
- O'NEIL, R** (1999) Bełżec: a reassessment of the number of victims. *East European Jewish Affairs*, 29, 85-118.
- O'NEIL, R** (2004) *Bełżec: Stepping Stone to Genocide Hitler's answer to the Jewish Question*, <http://www.jewishgen.org/yizkor/belzec1/bel000.html#Forward>.
- O'NEIL, R** (2007) *Archaeological investigations, a review by historians*. <http://www.holocaust-researchproject.org/ar/modern/archreview.html>.
- PAWLICKA-NOWAK, Ł** (2004a) Archaeological research in the grounds of the Chełmno-on-Ner extermination center. IN PAWLICKA-NOWAK, Ł (Ed.) *The Extermination Center for Jews in Chełmno-on-Ner in the Light of Latest Research, Symposium Proceedings September 6-7, 2004*. Konin, The District Museum of Konin.
- PAWLICKA-NOWAK, Ł** (2004b) Archaeological research in the grounds of the Chełmno-on-Ner former extermination center. IN PAWLICKA-NOWAK, Ł (Ed.) *Chełmno Witnesses Speak*. Konin and Łódź, The Council for the Protection of Memory of Combat and Martyrdom in Warsaw; The District Museum of Konin.
- POHL, D** and **P WITTE** (2001) The number of victims of Bełżec extermination camp: a faulty reassessment. *East European Jewish Affairs*, 31, 15-22.

- RASHKE, R** (1995) *Escape from Sobibor*, Chicago, University of Illinois Press.
- REDER, R** (1999) *Bełżec*, Krakow, Fundacja Judaica w Krakowie.
- RÜCKERL, A** (1977) *NS-Vernichtungslager im Spiegel deutscher Strafprozesse Belzec, Sobibor, Treblinka, Chelmno*, München, Deutcher Taschenbuch Verlag.
- RUTHERFORD, W** (2002) *Newest Sobibor Map June 1943*, <http://www.deathcamps.org/sobibor/pic/bmap21.jpg>.
- SCHELVIS, J** (2007) *Sobibor. A History of a Nazi Death Camp*, Oxford & New York, Berg.
- SCHOFIELD, A J, W G JOHNSON, and C M BECK** (2002) *Matériel Culture: the Archaeology of Twentieth-Century Conflict*, London ; New York, Routledge.
- SCHOFIELD, J** (2005) *Combat Archaeology: Material Culture and the Modern Conflict*, London, Duckworth.
- SERENY, G** (1983) *Into That Darkness*, New York, Vintage Books.
- TICHO, K** (2008) *My Legacy, Holocaust, History and the Unfinished Task of Pope John Paul II*, Włodawa, Muzeum Pojezierza Łęczyńsko Włodawkiego.
- WEISS, A** (2003 ) *A monumental failure at Belzec*. <http://www.hir.org/amcha/belzec.html>.
- WEWRYK, K** (2008) *To Sobibor and Back: an Eyewitness Account*, Włodawa, Muzeum Pojezierza Łęczyńsko Włodawkiego.
- WILLENBERG, S** (1992) *Revolt in Treblinka*, Warsaw, Żydowski Instytut Historyczny.
- WITTE, P and S TYAS** (2001) A new document on the deportation and murder of Jews during “Einsatz Reinhardt” 1942. *Holocaust and Genocide Studies*, 15, 468-486, doi:10.1093/hgs/15.3.468.
- ZIELINSKI, A** (2008) *Conversations with Regina*, Włodawa, Muzeum Pojezierza Łęczyńsko Włodawkiego.