

# Advances in the Use of Technology within European Jewish Cemeteries

*Last fall Vilnius hosted an international conference on cemetery research. Dr. Caroline Sturdy Colls, conference participant and Associate Professor of Forensic Archaeology and Genocide Investigation at Staffordshire University, United Kingdom, agreed to share her knowledge with our readers.*

Before the Holocaust, Jewish cemeteries were at the heart of Jewish communities across Europe, as places where the history of the Jewish people was preserved and remembered. During the Holocaust, the Nazis saw them as physical and symbolic expressions of Jewish culture. In an attempt to erase all traces of Jewish people, tombstones were toppled, graves desecrated, bones removed, and funerary houses looted. Not content with inflicting physical damage, the Nazis used cemeteries as execution sites, with mass graves excavated for (and sometimes by) those killed.

Within the field of archaeology, archaeologists have developed well-tested methodologies for locating and excavating historic cemeteries and, in the field of forensic archaeology, for identifying unmarked graves. However, the examination of Jewish cemeteries using archaeological approaches has been limited. This is in spite of the fact that the majority of Jewish cemeteries remain under threat. Many are damaged, dilapidated and/or reused for other purposes. Therefore, there is an urgent need to locate, record and characterize them before more traces of the past, and more importantly people, are lost. Because of this damage, dilapidation and reuse, there may be obstacles to interventions within cemeteries. Vegetation and even structural remains may obscure them, vandalism may have ruined them, and neglect may have caused their locations to fade from living memory. Several examples exist here in Lithuania. Due to the condition many cemeteries are found in, there is often the perception that nothing remains of them. However, as an archaeologist experienced in examining historic and contemporary sites, I know

that the traces of these important places will likely remain hidden below the surface.

In the past, the traces of Jewish cemeteries have not been examined in detail using archaeological methods because many archaeologists have failed to find a balance between scientific investigation and the religious requirements of Halachic Law. Traditional methods of archaeological excavation will not usually be appropriate in cemeteries due to the Halachic stipulation that disturbing the body of a person buried in a cemetery also disturbs their soul. On occasion, there has been fierce confrontation between archaeologists and Jewish communities when excavation has been carried out at, for example, sites of Nazi atrocity.

However, the reality is that sites will come under threat from development, graves may emerge due to erosion, research initiatives may be instigated and there may be a desire to erect fences, restore cemeteries and locate unmarked graves in the future. It is also important to remember that not all remains at Jewish cemeteries will be buried and therefore we should not overlook the other elements that make up cemeteries e.g. funeral houses and mausoleums, that have the potential to reveal new information about people and communities about whom knowledge has been lost.

## **Non-Invasive Archaeology**

Fortunately, archaeologists now have a number of non-invasive techniques at their disposal that offer the opportunity to investigate Jewish cemeteries in a way that respects their religious significance, overcomes the challenges posed by years of

neglect and maximizes the amount of information that can be gleaned about them.

The assimilation of different types of data recorded using non-invasive methods offers numerous opportunities for education and the dissemination of information about Jewish cemeteries. By merging together three dimensional, spatially accurate data with material collected about the people and communities connected to cemeteries, it is possible to create heritage tools that both educate and commemorate. Whilst there are already many important databases of Jewish cemeteries, non-invasive archaeological survey offers the opportunity to enrich these platforms and provide new ones that provide highly accurate virtual tours alongside maps, documents, photographs and other historical information. This has been successfully achieved by the author in relation to Treblinka extermination and labour camps in Poland for example, by making it possible to encounter archival and archaeological sources during a virtual tour of the site. Therefore, to adapt Ruth Ellen Gruber's assertion about cemetery restoration, archaeological surveys of Jewish cemeteries are vital in order to "rescue memory and return from oblivion." These methods would undoubtedly be of value for recording Jewish cemeteries in Lithuania, particularly those that remain at risk of development or ongoing neglect.

The first stage of any archaeological investigation should be the desk-based assessment phase. During this phase, archaeologists will examine historical documents, testimonies, photographs, historic and recent maps, aerial photographs and satellite imagery in order to evaluate the extent and nature of sites. Let me provide an example. During the Occupation of the island of Alderney in the British Channel Islands, the Nazis interred thousands of forced labourers, including Jewish and non-Jewish people from all over Europe. Hundreds are known to have died; whilst some were buried in individual graves within a cemetery, the bodies of others were never found. In 2010, I initiated a project which sought to locate the remains of the cemetery and mass graves on Alderney. The first stage of this work involved the collation of maps, documents and photographs, and the analysis of hundreds of aerial photographs in order to identify its possible location,



Figure 1: Comparison of a photograph taken in 1945 of Longy Common cemetery on Alderney of Jewish graves with a modern image showing the former locations of these graves (Copyright: Barney Winder (top image) and Caroline Sturdy Colls (bottom image)).

and to characterise where the individual and mass graves were to be found. Likewise, owing to the fact that the Jewish victims were known to have been buried in a separate area within the cemetery, it was the aim of the research to locate these burials without disturbing the ground. The resulting analysis demonstrated how the cemetery had developed over time from 1942 to 1945, and clearly indicated the positions of the rows of individual graves, potential mass graves and Jewish area of the cemetery due to the presence of visible ground disturbance in these images. Likewise, landscape markers shown in contemporary photographs can be identified in the modern landscape to help determine the location of cemeteries and groups of graves, as in the example of the Jewish area of the cemetery in Alderney (Fig. 1).

A recent development in remote sensing comes in the form of airborne LiDAR survey, LiDAR uses the emission and reflection of laser pulses to generate three dimensional digital terrain models. These models show depressions in the ground, including those invisible to the naked eye, caused by the presence of buried remains, such as graves and structures, and so they can be used to detect graves, cemeteries boundaries and structures. Another advantage of this method is that it allows vegetation to be digitally removed from the image – so if graves, boundaries and

structures are present within woodlands or underneath dense vegetation, it is still possible to detect them. I have successfully used this method to identify graves located deep within woodland near to the forced labour camps at Treblinka and Adampol in Poland. I am also using it to detect unmarked Jewish cemeteries in the Włodawa region of Poland, as well as individual and mass graves in the town of Oświęcim.

Terrestrial LiDAR methods (also known as laser scanning) also exist which allow matzevah to be scanned in three dimensions. This creates a permanent digital record for research and education, and (because of high definition nature of the technology) may make visible inscriptions on tombstones that are difficult to see with the naked eye. Virtual tours of cemeteries can also be created using this technology and using 360 degree photographs to allow those unable to go to sites in person a chance to “visit”.

The destruction of Jewish cemeteries, whether by the Nazis or as a result of other landscape modification, resulted in the toppling and removal of tombstones, and the desecration of graves. Thus many of the physical remnants of Jewish cemeteries will only survive below the ground. Archaeologists now have a suite of geophysical methods they can use to identify buried remains and to model them in three dimensions. The example of Alderney mentioned earlier provides a useful example. Here, the boundaries of the cemetery are no longer marked, nor are the sections of the cemetery which were used for Jewish and non-Jewish individual and mass burial. Resistance survey is a type of geophysical survey which can be used to detect shallow changes in resistance in the soil caused by the presence of buried remains. Using this method, it was possible to detect the boundaries of the cemetery and the rows of individual graves in each area. It was also possible to observe several possible mass graves inside and outside the cemetery boundaries which were also visible in aerial photographs of the area. Another technique, Ground Penetrating Radar (GPR), which uses electromagnetic radio waves to detect disturbances below the ground, was then used to record the cemetery in three dimensions and further analyse the extent and nature of

the graves (Fig. 2). By analyzing historical material collected during the desk-based assessment phase in conjunction with these results, it was possible to identify previously unknown graves and examine patterns in the configuration of the graves within the cemetery. Geophysical survey has been used at other sites to identify the locations of graves so that these areas could be marked and avoided during future development or excavation works. In August 2016, I will use these methods to help locate unmarked graves and toppled tombstones in Oświęcim cemetery.



Figure 2: Ground Penetrating Radar (GPR) survey (Copyright: Dr Caroline Sturdy Colls)

#### **In the future, non-invasive methods offer the opportunity to:**

- locate cemeteries, their boundaries and the graves they contain
- locate (and re-erect) tombstones
- examine motifs and text on tombstones
- locate and protect mass graves of atrocities committed within cemeteries
- understand more about cultural genocide perpetrated within cemeteries
- preserve sites by way of digital record and create innovative educational tools.

#### **Crucially, they offer the opportunity to do so:**

- in a way that respects religious law concerning burials (e.g. without disturbing the ground if required)
- despite the dilapidated and hidden nature of sites
- regardless of the size of the area being examined
- in a way that creates a sustainable, thorough record of Jewish cemeteries which provides new opportunities for education and commemoration worldwide.

*Caroline Sturdy Colls*