# If Stones Could Speak
## A collaboration in Mutual Understanding

**Moshe Caine**
**Hadassah Academic College Jerusalem**
mosheca@hac.ac.il
**2022**

## Abstract

This paper describes an ongoing project which is at once, both ideological, anthropological, and technological.
It proposes a model for cross cultural documentation and analysis of lost communities through a combination of "hands on" and advanced imaging technologies.
The rationale underlining this project is that through joint activity, discourse, and technological discovery, differing cultural groups can forge a common ground and gain a better understanding of one another.

The project outlined here describes a two-phased research, aimed at uncovering the lives and stories of lost Jewish communities in Northern Bavaria, which like so many others vanished following the Holocaust.

The first phase involves the participation of youngsters from Israel and Germany in a joint activity, cleaning, restoring and documenting the deserted and vandalized cemeteries. The second phase involves the application of advanced photographic, imaging and web technologies for observation, investigation, analysis, and dissemination of the content.

The paper concludes with the suggestion that this model may act as a template for future cross-cultural collaborations of a technical, academic and social nature.

**Introduction**

I would like to tell you a story. To take you on a journey. To transmit a message.

For the past few decades my goal has been the application of imaging technologies to Cultural heritage conservation. The vision behind it, cultural understanding, education, and collaboration. So, when I saw the sub-themes of this meeting, I immediately identified with the theme of "Cultural heritage, peace building & education".

So, this paper will not concentrate so much on technology for technology's sake, but rather it will look at how technology can aid us in bringing people together, especially young people. I shall tell a story about the revival of lost communities, and how telling their stories has acted as an aid in bridging cultures and religions.
This is the story of the uncovering of three small Jewish communities in North Bavaria, Germany, who vanished from the face of the earth following the Holocaust of WW2
This is a story about the power and value of tangible and intangible heritage objects. The power of past memory. Their purpose for the present. Their potential for the future.

In this case study I wish to focus on 3 phases of the work.
* The ideology, the vision, which inspired it.
* The research which accompanied it.
* The Technology which enabled it.



**The Background**

It all started with a partnership. A twinning of two high schools. One, the Mikveh Yisrael High School near Tel Aviv, Israel.  The other, the Rhon Gymnasium high school in the small German town of Bad Neustadt.
In the spirit of friendship and mutual understanding, a small group of Israeli and German high school children came together in Germany and undertook to clean up, renovate, and document the small Jewish cemetery abandoned and vandalized since the 2nd world war.
Working together over several days they removed the undergrowth and weeds, cleaned the grounds, up righted the tomb stones .and together attempted to decipher and copy down the carved inscriptions on them. The Israeli children the deciphering the Hebrew  texts. The German children the German ones. Explaining the meaning behind the symbols on the stones was another step-in bridging religions and traditions.

All this was in itself a worthy activity. However, we felt that it could be so much more. That it could act as a springboard, not just to give honour to a lost past, but possibly to virtually resurrect the community and give faces, names, and stories to those no longer here.
Thus, we moved from the emotional involvement to the research stage.
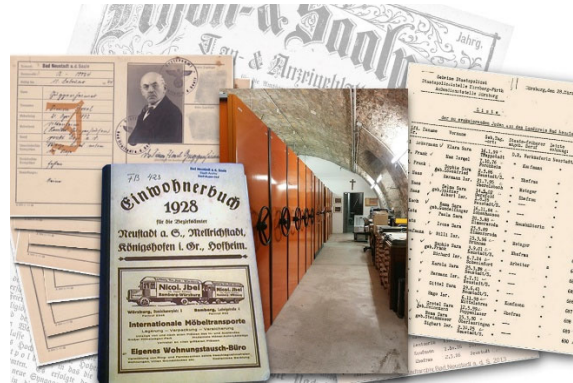


**The Research**

We were fortunate to be aided by rich municipal archives, dedicated local historians and ordinary, yet concerned citizens. Likewise, we made extensive use of global online searches, such as the archives of Yad Vashem, The World Holocaust Remembrance Center in Jerusalem and the Holocaust Museum in Washington.
Slowly but surely, we uncovered the names, the faces, the stories, and the chronicles, inscribed on the stones and stamped forever in the pictures and in the archives.

- The map of the old town with its residents and their shops.
- The once thriving Synagogue, reduced by the Nazis to a repository for grain storage.
- The primary school, with its head teacher, Israel Whaler, who went to his death alongside many of his children.
- The remarkable story of Ruth Friedman, who was deported as a young girl in 1939, who ultimately made her way to Jerusalem, and who I discovered, upon meeting her, was no other than the mother of a school mate of mine.
- Or Kay Fyne, who as a young girl escaped from Germany on the last train of the famous KinderTransport, the rescue effort of children from Nazi-controlled territory that took place during the months prior to the outbreak of the War, While her parents perished in the death camp of Auschwitz. Kay grew up in England and dedicated her later years to telling her story to young children in her new hometown of Liverpool.

**The Application of Digital Technologies**

The third phase of this project involved the use of digital imaging technologies for the visualisation, restoration, and dissemination of the stories.

The work involved both on-site imaging and off-site data processing, including four main technologies:
1. Reflectance transformation imaging
2. Photogrammetry
3. Interactive Virtual reality and virtual tours
4. All these uploaded to the internet and web portals.



**Reflectance transformation imaging**

The first stage was extensive use of RTI, a popular technique for surface texture enhancement. Especially efficient on withered and stone. To make the invisible visible again.
RTI is a technique aimed at enhancing the surface detail of objects through an algorithmic rendering of multiple registered digital images of the object, shot with controlled, varying, yet known light positions.
The light sources are positioned at a constant radius from the subject and surround it at incremental angles, forming a dome or hemisphere of light positions. The photographs (between 40 -70) are then fed into software which calculates the light positions (LP file) and forms the basis for the creation of the final .PTM file, essentially a virtual three-dimensional digital image light source that is controlled interactively via a Java based viewer, creating a virtual digital light source with which the stones may be then relit and deciphered at a later date. The method was originally developed by Tom Malzbender of HP Labs in order to generate enhanced 3D computer graphics and it has since been adopted widely in the cultural heritage world.

**Photogrammetry – Structure from Motion**
As mentioned earlier, technology exists to solve a problem. Not for its own sake.
Along with the task of cleaning up, renovation and restoration of the cemeteries, our task was to map out the cemetery accurately and efficiently.
The ideal solution would have been the use of drone photography; This was possible in the case of the Unsleben cemetery, but was not possible in Bad Neustadt, due to the thick coverage of trees.
The solution we thus employed was photogrammetry. 3D modeling via photography.  Perched on a ladder and taking several hundred pictures, a photogrammetric model of the cemetery was created. This allowed us an to create an orthographic top-down view of the area from which the accurate layout could be drawn.

Likewise, photogrammetry allowed us do document individual stones for analysis and research, not just into their past but also into methods for their future preservation.

**The Internet**

Now, A story is not a story if it cannot be told.
The internet not only allows us to tell it, but it can do so much more. The application of virtual reality can transport us to within a place, put us in the here and the now.
Thus, the third use of digital media was the creation of an immersive interactive virtual tour of the cemetery. Bringing together all the information which we had gathered, we enabled the virtual visitors to click on the stones, linking them to the stories of the families. Buried underneath them. Furthermore, as many families never survived to be buried in the cemetery, we added a virtual tombstone with links to the members of the communities deported from the towns.
In this way the life cycle of the families was traced and preserved. Their roots, their lives in the community, the local demise of the fortunate ones. The deportation and death of the less fortunate.

**Crowdsourcing**
The last stage in telling the story was involving the public. Crowdsourcing.
The internet gives us the opportunity to share and involve others.
For example, the *"History Pin"* website "Connecting communities with local history"
Enabled local and foreign individuals to add their stories to the map.
Or the "*What was there*" site which allows us to place historic images on local spots, rolling them back in time to tell what was once there.
These websites have since served as templates for additional communities and it is our hope that it may continue to do so. Not just in Germany and likewise not just for Jewish communities, but rather that they may serve as a model and as virtual monuments to all who have no one to speak in their name.

For we are living today in an ever-growing multicultural society. One, where every individual has a name.

The ancient Jewish scripture teaches us: *"Whoever saves a single life is considered to have saved the whole world."*
Because we are all created in God's image. Regardless of race, religion, gender, or Color.

5. REFERENCES

Bar-Levav, A. (2002) We Are Where We Are Not:
The Cemetery in Jewish Culture. Jewish Studies, 41, pp. 15-46.

Malzbender, T., Gelb, D., and Wolters, H. (2001) Polynomial Texture Maps.
http://www.hpl.hp.com/techreports/2001/HPL-2001-33R1.pdf?jumpid=reg R1002 USEN

Pinkas Hakehilot Encyclopaedia of Jewish Communities from Their Foundation Till After the Holocaust, Volume: Germany- Bavaria.

Yad Vashem Martyrs and Heroes' Remembrance Authority, Jerusalem.
https://www.yadvashem.org/

United States Holocaust Memorial Museum.
https://www.ushmm.org/

What Was There. http://www.whatwasthere.com

HistoryPin. http://www.historypin.com

Worpole, K. (2003) Last Landscapes the Architecture of Cemeteries in the West. Reaktion
Books Ltd, UK.