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ARTYKUŁY / ARTICLES

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Reading the Illegible: A Case Study of the Documentation and Analysis of Matzevot at the Jewish Cemetery in Chrzanów (Lesser Poland)

Abstract: This article presents a 3D scanning method used to read the inscriptions on the oldest damaged tombstones at the Jewish cemetery in Chrzanów. To date, the technique has not been used at any other Jewish cemetery in Poland. The authors discuss the techniques and methods used, how the acquired data was processed and analyzed, and what results were obtained. The work presented here is part of a broader project to inventory Jewish cemeteries in the region of Zagłębie and western Małopolska (Lesser Poland).

Keywords: 3D scanning; Jewish cemeteries; Zagłębie; western Małopolska (Lesser Poland); Chrzanów.

Słowa kluczowe: skanowanie 3D; cmentarze żydowskie; Zagłębie; zachodnia Małopolska; Chrzanów.

The subject of this article is the 3D scanning of tombstones in the Jewish cemetery in Chrzanów. The work was carried out as part of a project funded by the National Program for the Development of the Humanities (*Narodowy Program Rozwoju Humanistyki*), which aims to create a corpus of inscriptions and ornamental motifs from Jewish cemeteries in the region of Zagłębie and western Małopolska (Lesser Poland). This region—associated primarily with mining and heavy industry—was an important area of Jewish settlement in the nineteenth and early twentieth centuries. In the early twentieth century, Jews constituted about twenty percent of the total population here, and there were thriving Jewish political parties and social organizations. Many monuments of Jewish material culture, including cemeteries, have survived in this region. The corpus of inscriptions and ornamental motifs created will include tombstones from Jewish cemeteries documented during previous work (Pilica,[1] Olkusz,[2] Jaworzno,[3] Sławków, and Dąbrowa Górnicza[4]), as well as those recorded as part of this project (Chrzanów,[5] Będzin, Trzebinia). The entire corpus will include about seven thousand tombstones from nine cemeteries in eight localities. So far, no such corpus has been prepared for any region of Poland.

The collected material, placed in a publicly accessible database (posted on the website of the Chrzanów Museum, which cares for the local Jewish cemetery), will form the basis for a variety of research initiatives, including on a broader, regional scale. It will enable historical and demographic research into the history of individual Jewish communities or families, Jewish spirituality, and the internal diversity of the Jewish community, including both Orthodox Jews and non-religious or assimilated Jews. The tombstones also make it possible to study Jewish art (symbolism of representations, ornamental motifs, functioning of stone workshops) and the Hebrew language used in Polish lands.

Chrzanów, the site of the case study presented there, is an old Jewish settlement, and the first mention of Jews in the city dates to the late sixteenth century. Until the mid-eighteenth century, the Jews of Chrzanów were subordinate to the Olkusz Jewish community, being its branch. Separation from the main community meant the creation of their own infrastructure, including the erection of a synagogue and the creation of their own cemetery. The first cemetery (referred to eventually as the

[1] Leszek Hońdo, Dariusz Rozmus, Andrzej Witek, *Cmentarz żydowski w Pilicy. Rys historyczny i materiały inwentaryzacyjne* (Kraków, 1995).

[2] Krzysztof Kocjan, Anna Michałowska, Dariusz Rozmus, Marta Rozmus, Andrzej Witek, *Nowy cmentarz żydowski w Olkuszu* (Kraków, 2003); Anna Michałowska-Mycielska, Dariusz Rozmus, Marta Rozmus, *Stary cmentarz żydowski w Olkuszu. Materiały inwentaryzacyjne* (Olkusz, 2007).

[3] Leszek Hońdo, Dariusz Rozmus, Sławomir Witkowski, *Cmentarz żydowski w Jaworznie* (Kraków, 2012).

[4] Leszek Hońdo, Dariusz Rozmus (eds.), *Cmentarze żydowskie w Sławkowie i Dąbrowie Górniczej* (Kraków, 2004).

[5] The first result of the project is an album covering a small part of the tombstones in the cemetery in Chrzanów: Anna Michałowska-Mycielska, Dariusz Rozmus, *Emek ha-bakha. Dolina Płaczu. Najpiękniejsze nagrobki na cmentarzu żydowskim w Chrzanowie. The Valley of Tears: The Most Beautiful Tombstones in the Jewish Cemetery in Chrzanów* (Chrzanów, 2023).

"small" one) has not survived to this day. However, the adjacent "large" cemetery at the intersection of today's Podwale and Borowcowa Streets is still preserved. There, the oldest surviving tombstone dates from 1802, and the most recent burials date to the Holocaust. During our work, 3,698 tombstones of very different states of preservation were documented. The most damaged tombstones, located mainly in the oldest section of the cemetery, were prioritized for 3D documentation. To compare the effects, we also scanned the newest tombstones made of diverse types of stone under different degrees of deterioration and damage. A total of 135 tombstones were scanned.

Introduction: Available techniques and methods

The following description will necessarily be a synthetic summary of currently available techniques and methods, focusing on those that are potentially most appropriate for our case of interest.

One of the significant problems that epigraphists encounter in their research is to render unclear and/or partially eroded inscriptions legible. This problem is also common to many other researchers, including, for example, numismatists or specialists who analyze rock art. In the following considerations, we will limit ourselves only to cases where illegible inscriptions (or geometric or figural representations) were carved or engraved. Therefore, cases of inscriptions (or representations) created by various methods of applying pigment will remain beyond the scope of our interest. In the last case, the basic distinguishing feature is color, and therefore the legibility methods are based on the registration of specific ranges of electromagnetic radiation (e.g., infrared, ultraviolet, X-ray) or appropriate filtration or manipulation of the components of the visible light spectrum, e.g., an ImageJ application or its plugin DStretch commonly used by many rock art researchers.[6]

However, in our case, the distinguishing feature is the relative depth to the adjacent surface. Therefore, the simplest method is to photograph the analyzed object illuminated from a specific angle—so that the details of the micro-relief are most visible. This effect cannot always be achieved

[6] ImageJ (https://imagej.nih.gov/ij/features.html) [retrieved: 17 Apr. 2024] is an open-source application. It allows not only simple geometric transformations but also much more advanced image enhancement and color processing with the use of DStrech plugin (https://www.dstretch.com/AlgorithmDescription.html) [retrieved: 17 Apr. 2024].

in natural conditions, which is why it is often necessary to use artificial lighting. Additionally, not all details of the micro-relief are adequately visible at a given light angle. Hence, there is a need to take several photos with different lighting conditions. This situation led to the development of the Polynomial Texture Mapping technique [PTM].[7] Tom Malzbender of Hewlett–Packard Laboratories at Palo Alto (CA) introduced the PTM at the end of the twentieth century to enable the imaging and interactive display of objects under varying lighting conditions to reveal artifacts' surface details. Since that time, the technique has been widely adopted for cultural heritage applications.[8] Subsequently, the method was expanded to Reflectance Transformation Imaging [RTI], which was also used in the analysis of poorly readable manuscripts and papyri[9] or for the conservation of paintings.[10] Both methods use multi-lighting conditions to capture a set of images from a different camera position, thus the knowledge of the angle of incidence of light and the position of the camera is essential. While it is easy to obtain such conditions in the laboratory (Fig. 1A), the method poses several difficulties for practice in the field (Fig. 1B&C).

However, with the intensive development of digital photogrammetry and 3D scanning methods, it was possible to transfer the entire cumbersome process from the physical space to the virtual environment. The physical object was replaced by its virtual replica that, in an appropriate software environment, could be illuminated and visualized from any angle. Virtual versions of both techniques (vPTM and vRTI) permitted not only the significant simplification and acceleration of input data acquisition but also to obtain much better results.[11]

[7] Tom Malzbender, Dan Gelb, Hans Wolters, *Polynomial Texture Maps*, Proceedings of the ACM SIGGRAPH Conference on Computer Graphics, 2002, 519–528; DOI:10.1145/383259.383320.

[8] Graeme Earl, Kirk Martinez, Tom Malzbender, "Archaeological Applications of Polynomial Texture Mapping: Analysis, Conservation and Representation," *Journal of Archaeological Science* 37 (2010), 8:1–11; DOI:10.1016/j.jas.2010.03.009.

[9] Todd R. Hanneken, *New Technology for Imaging Unreadable Manuscripts and Other Artifacts: Integrated Spectral Reflectance Transformation Imaging (Spectral RTI*), in Claire Clivaz, Paul Dilley, David Hamidović (eds.), *Ancient Worlds in Digital Culture (Digital Biblical Studies 1)* (Leiden, 2016), 180–195.

[10] Molly Hughes-Hallett, Christina Young, Paul Messier, "A Review of RTI and an Investigation into the Applicability of Micro-RTI as a Tool for the Documentation and Conservation of Modern and Contemporary Paintings," *Journal of the American Institute for Conservation* 60 (2021), 1:18–31; DOI:10.1080/01971360.2019.1700724.

[11] Jacek Kościuk, Małgorzata Telesińska, Maciej Nisztuk, Marta Pakowska, "Documentation of the Most Important Petroglyphs by Structured Light Scanning and Analysis of the Most Damaged Petroglyphs by vPTM and vRTI Methods," *Architectus* (2020), 2:43–58; DOI:10.37190/arc200207.

Fig. 1. Examples of using the RTI technique to document larger artifacts in laboratory (A) and in field (B&C) conditions. Sources: A – https://ipch.yale.edu/news/rti-training-ipch-digitization-lab; B, C – https://raan.hypotheses.org/1326 [retrieved: 17 Apr. 2024]

Digital documentation of illegible stone art, inscriptions, or wall paintings has been developing intensively since the end of the twentieth century. The very idea of representing artifacts in the form of 3D models has opened up many new possibilities. In virtual conditions, such models could not only be visualized under illumination from any direction but also be represented in any way, e.g., with color information removed. In many cases, the mere removal of color information and lighting from several directions permitted the disclosure of inscriptions that under normal conditions (during the field visit) would remain unnoticed (Fig. 2).

Further advances in 3D scanning technology and particularly the development of algorithms analyzing terrain relief in search of archaeological relics[12] have opened up new possibilities. In this case, the detection of key features is based on algorithms analyzing DTM (Digital Terrain Model) usually represented as a raster file with embedded high (*Z* coordinate) information. Among the others, the choice of analytical tools includes:

- Unidirectional hill-shading;
- Multidirectional hill-shading up to 64 azimuth directions;

[12] Žiga Kokalj, Ralf Hesse, *Airborne Laser Scanning Raster Data Visualisation: A Guide to Good Practice* (Ljubljana, 2017).

- Principal Component Analysis of hill-shading[13];
- Slope gradient;
- Simple local relief model;
- Sky-View factor, and Anisotropic Sky-View factor[14];
- Openness (negative and positive);
- Sky illumination[15];
- Local dominance.

However, there is no single and straightforward rule by which visualization modes will most effectively detect and emphasize the desired features.[16] Due to the diverse nature of features in the given area of study, it is a matter of trial and error, using different algorithms with different settings (Fig. 3). Thus, in many cases, it is often a matter of successive experimentation.

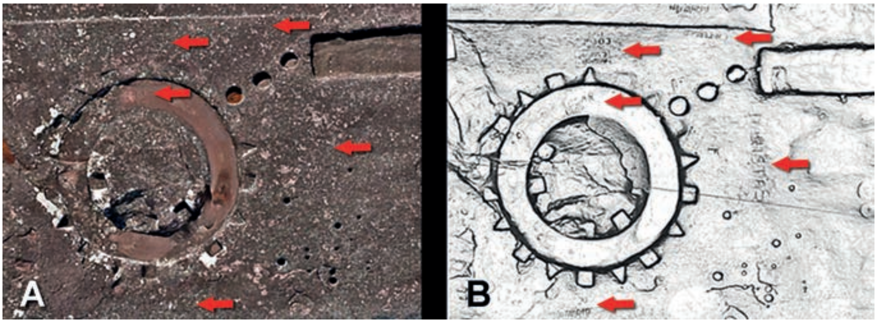

Fig. 2. El Fuerte de Samaipata (Bolivia). Effects of removing color information and adding multi-light illumination. Red arrows indicate inscriptions scratched by tourists; A – orthoimage from digital photos taken in existing lighting conditions; B – virtual 3D model with color information removed, illuminated from 16 directions. Developed by Jacek Kościuk

[13] Bernard Devereux, Gabriel Amable, Peter Crow, "Visualisation of LiDAR Terrain Models for Archaeological Feature Detection," *Antiquity* 82 (2008), 470–479.

[14] Klemen Zakšek, Kristof Oštir, Žiga Kokalj, "Sky-View Factor as a Relief Visualization Technique," *Remote Sensing* (2011), 3:398–415, https://doi.org/10.3390/rs3020398 [retrieved: 17 Apr. 2024].

[15] Patrick J. Kennelly, A. James Stewart, "General Sky Models for Illuminating Terrains," *International Journal of Geographical Information Science* 28 (2014), 383–406; https://doi.org/10.1080/13658816.2013.848985 [retrieved: 17 Apr. 2024].

[16] Keith D. Challis, Paolo Forlin, Mark Kincey, "A Generic Toolkit for the Visualization of Archaeological Features on Airborne LiDAR Elevation Data," *Archaeological Prospection* 18 (2011), 288, https://doi.org/10.1002/arp.421 [retrieved: 17 Apr. 2024]; Rebecca Bennett, Kate Welham, Ross A. Hill, Andrew Ford, "A Comparison of Visualization Techniques for Models Created from Airborne Laser Scanned Data," *Archaeological Prospection* 19 (2012), 47, https://doi.org/10.1002/arp.1414 [retrieved: 17 Apr. 2024].

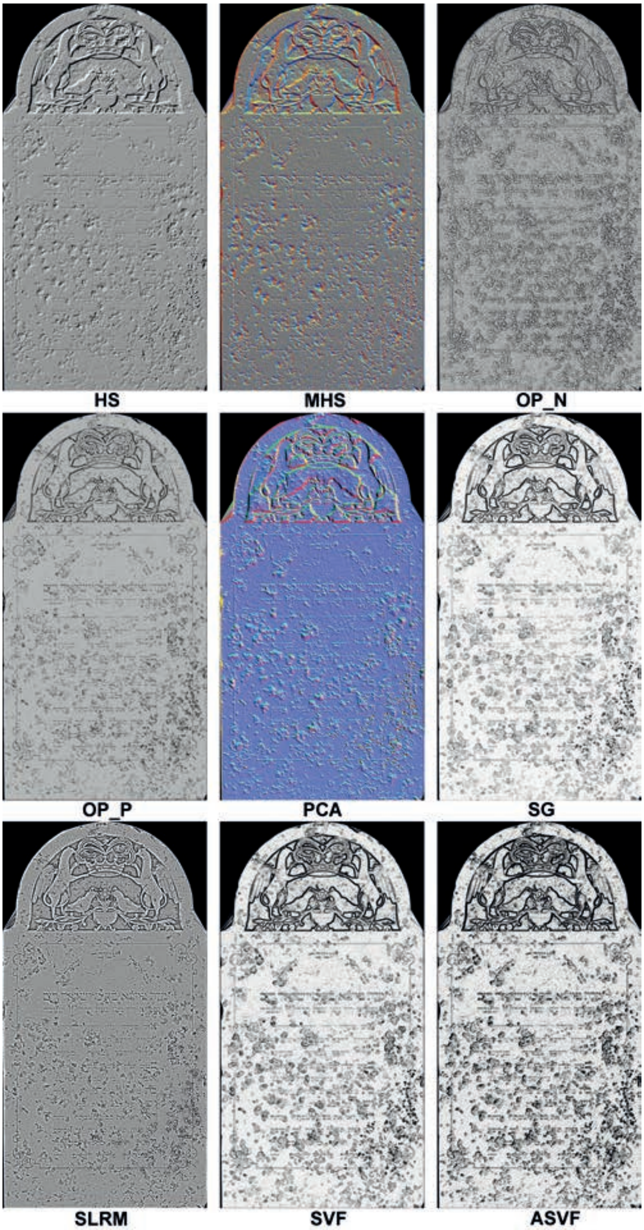

Fig. 3. Matzevah Chrzanów_2744. Comparison of the effects of using different algorithms analyzing terrain relief. Developed by Jacek Kościuk

HS – unidirectional Hill-Shading; MHS – Multidirectional Hill-Shading; OP_N – Openness Negative; OP_P – Openness Positive; PCA – Principal Component Analysis of hill-shading; SG – Slope Gradient; SLRM – Simple Local Relief Model; SVF – Sky-View Factor; ASVF – Anisotropic Sky-View Factor.

It should also be emphasized that, although the above-mentioned algorithms were developed as tools for analyzing data from LiDAR surveys, there are no technical reasons why they cannot be used to analyze 3D point clouds derived from structured light scanning or digital photogrammetry. Therefore, we can summarize the methods discussed above in a flow chart that can be used in our specific case (Fig. 4).

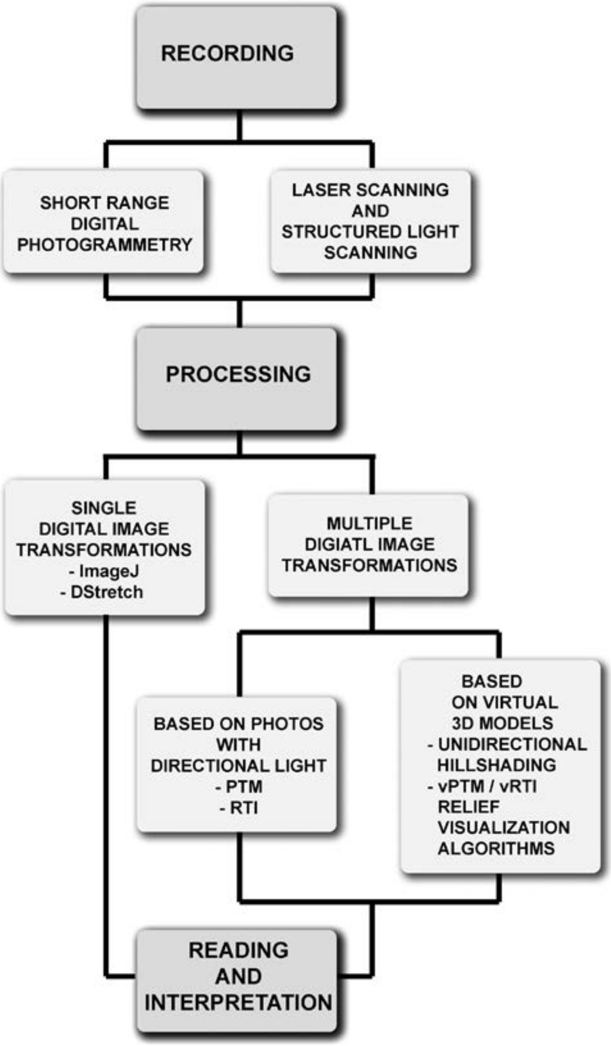

Fig. 4. Data flow diagram for selected applications of 3D laser scanning and digital photogrammetry in the analysis of poorly readable objects. Developed by Jacek Kościuk

The case of the cemetery in Chrzanów (Lesser Poland): Choosing the best method for documenting and rendering the inscriptions legible

Since the decorated faces of the matzevot—the subject of research—are oriented towards the east, this requires certain preconditions for the use of digital photogrammetry (Fig. 5). Analysis of the day of the expected survey shows only one hour (from 11:45 CET to 12:45 CET) of good sunlight incidence angles (45°÷15° horizontally and 62°÷63° vertically). Additionally, dense old trees shade most of the matzevot faces or create an undesirable pattern of light and shadows. This situation forced us to abandon digital photogrammetry techniques because the alternate artificial lighting would require the use of a generator, greatly complicating the logistics of the project and considerably extending the time necessary to collect field data.

Therefore, the choice for the primary data collection method was the structured light scanning technique. An Artec Leo handheld scanner (Fig. 6) was used with the following technical parameters:

- Working distance: 0.35÷1.2 m;
- 3D resolution: up to 0.2 mm;
- 3D point accuracy: up to 0.1 mm;
- 3D accuracy over distance: up to 0.1 mm + 0.3 mm/m;
- Texture resolution: 2.3 Mpix/frame;
- Data acquisition speed: up to 35 mln points/s;
- Built-in 3D light source: VCSEL (Vertical Cavity Surface-Emitting Laser);
- Built-in 2D light source: array of 12 white LED (Light Emitting Diode);
- Built-in position sensor: 9 DoF (9 degrees of freedom) inertial system;
- Multi-core internal processing: NVIDIA® Jetson™ TX1 Quad-core ARM®, Cortex®-A57 MPCore, Processor NVIDIA Maxwell™ 1 TFLOPS GPU with 256 NVIDIA® CUDA® Cores;
- Weight: 2.6 k.

The main aim of the proposed method of structured light 3D scanning, which has not been used so far at any other Jewish cemetery in Poland,[17]

[17] The possibility of using another method (3D laser scanning) to read inscriptions in Jewish cemeteries in Poland has been however mentioned by Janina Zaczek-Peplinska, Maria Elżbieta Kowalska, “Wykorzystanie techniki naziemnego skanowania laserowego w celu pozyskiwania danych geoprzestrzennych i epigraficznych w dokumentacji cmentarzy żydowskich i zabytkowych obiektów militarnych,” *Przegląd Geodezyjny* (2024), 2:33–34.

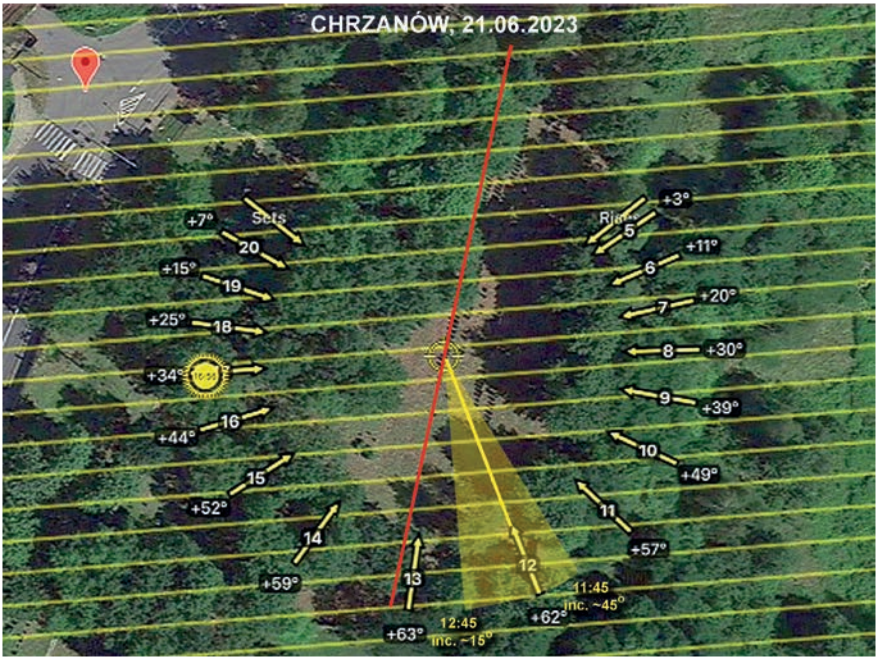

Fig. 5. The Jewish cemetery in Chrzanów. Analysis of the angle of sunlight incidence on the day of the expected survey. Source: Sun Seeker AR application, https://apps.apple.com/us/app/sun-tracker-ar/id1460472433?platform=iphone [retrieved: 26 May 2022]. Developed by Jacek Kościuk

Fig. 6. Artec Leo portable scanner. Source: https://www.artec3d.com [retrieved: 26 May 2022]

was to facilitate the reading of badly preserved inscriptions on damaged tombstones. However, structured light 3D scanning for documenting and deciphering illegible Jewish gravestones has been already in use for over a decade.[18] There were also attempts to use another technique of 3D documenting Jewish gravestones: digital close-range photogrammetry.[19]

In the case of the Chrzanów project, scanning a single object took no more than five minutes, and a two-person team documented 135 matzevot within one and a half working days. The limitation was the capacity of the scanner's built-in batteries and the weight of the scanner, which became burdensome during continuous operation.

The first step of postprocessing took from half an hour to three hours, depending on the size of the matzevah stone and the number of scan frames collected. This stage of the project ended up with the textured 3D model in *.OBJ format. Further processing followed the path shown in Fig. 7. The *.OBJ model was imported to Leica Cyclone 3DR software from where three further deliverables were produced: RGB orthoimage and hypsometry of the matzevah face and, finally, after necessary cleaning and validation, a 3D point cloud as the input for relief visualization algorithms. The last step in this stage of processing was to convert the 3D point cloud to a Digital Elevation Model (DEM). The resulting GeoTIFF file was treated with the relief visualization algorithms (as described above). Deliverables of this step (compare with Fig. 3) were merged with the RGB orthoimage and hypsometry resulting from the 3D model. Combined results of Sky-View Factor, Openness Positive, Slope Gradient, and Analytical Hill-shading algorithms proved to be particularly useful. This combination of different outputs is usually known under the name Visualization Archeological Terrain, therefore the acronym VAT will be used there.

[18] Cf. https://jewish-heritage-europe.eu/2014/01/07/technology-3d-scanners-help-digitize-weathered-tombstone-insciptions/ [retrieved: 8 Sept. 2024], or combined 3D methods of documenting inscriptions (by structured light scanning) and topography (by terrestrial laser scanning) of the medieval Jewish cemetery in Worms, cf. https://terrascientia.wordpress.com/wp-content/uploads/2012/10/tls__worms-medieval-jewish-cemetary.pdf [retrieved: 20 Mar. 2024].

[19] Cf. documentation of weathered inscriptions from an early medieval (the nineteenth century) Jewish cemetery in Venosa (southern Italy), https://diaspora.sites.uu.nl/projects/3d-pilot-project-in-venosa/ [retrieved: 20 Mar. 2024].

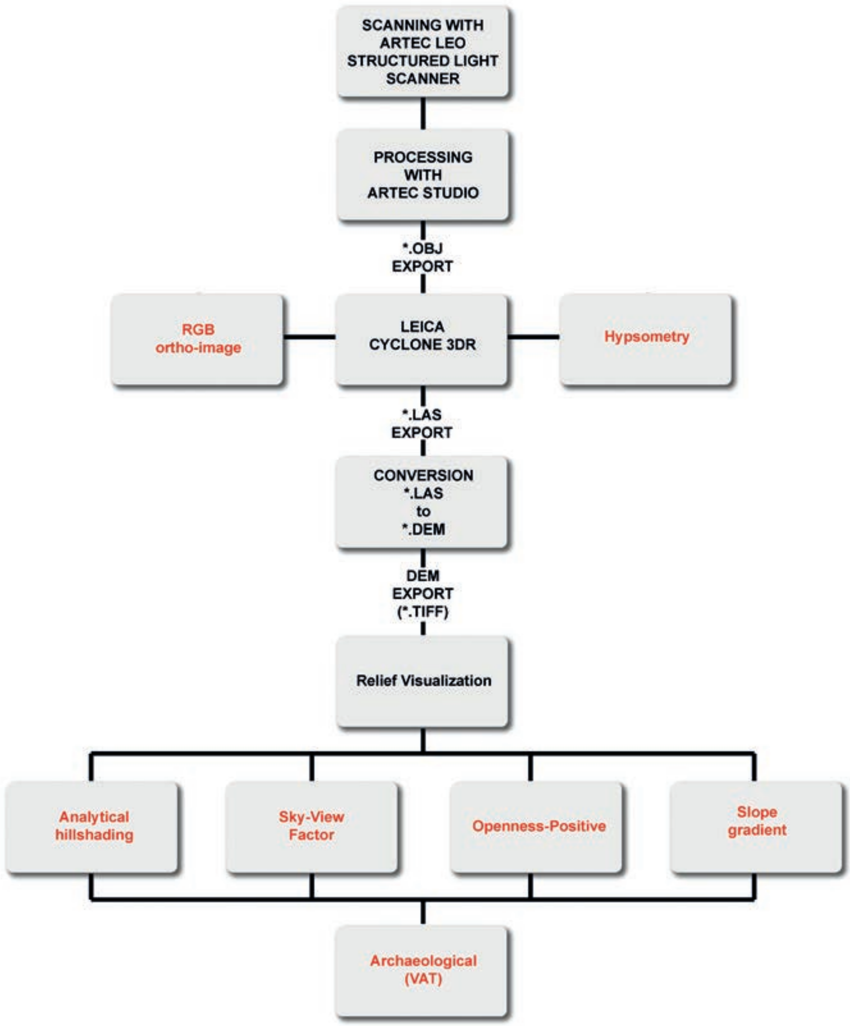

Fig. 7. Data flow diagram for further processing steps. Main deliverables are shown in red. Developed by Jacek Kościuk

Results

The final results can be divided into three groups according to their usefulness. The first group is those where very satisfactory effects were achieved and everything, including both the text and decorative elements, are clearly and unambiguously reproduced (Fig. 8).

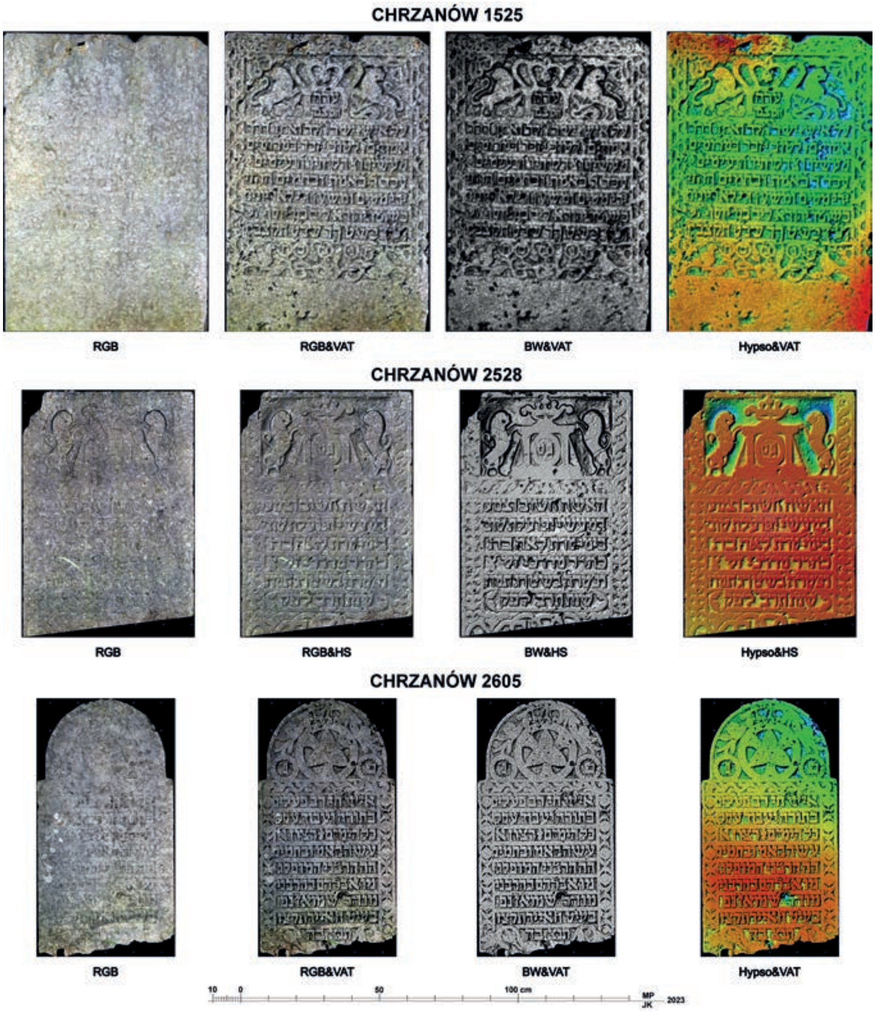

Fig. 8. Examples of best results. Developed by Marta Pakowska and Jacek Kościuk

RGB – orthoimage in natural colors; VAT – Visualization Archeological Terrain; BW – Black and White orthoimage; HS – analytical Hill Shading; Hypso – Hypsometry.

The second group includes cases where, despite the local erosion of the stone surface, the main body of the text can still be read (Fig. 9).

The third and last group consists of cases where extensive erosion and traces of vandalism make it practically impossible to read the text (Fig. 10). Despite the use of various visualization algorithms with different parameters and their cross-combinations, it is possible to read at

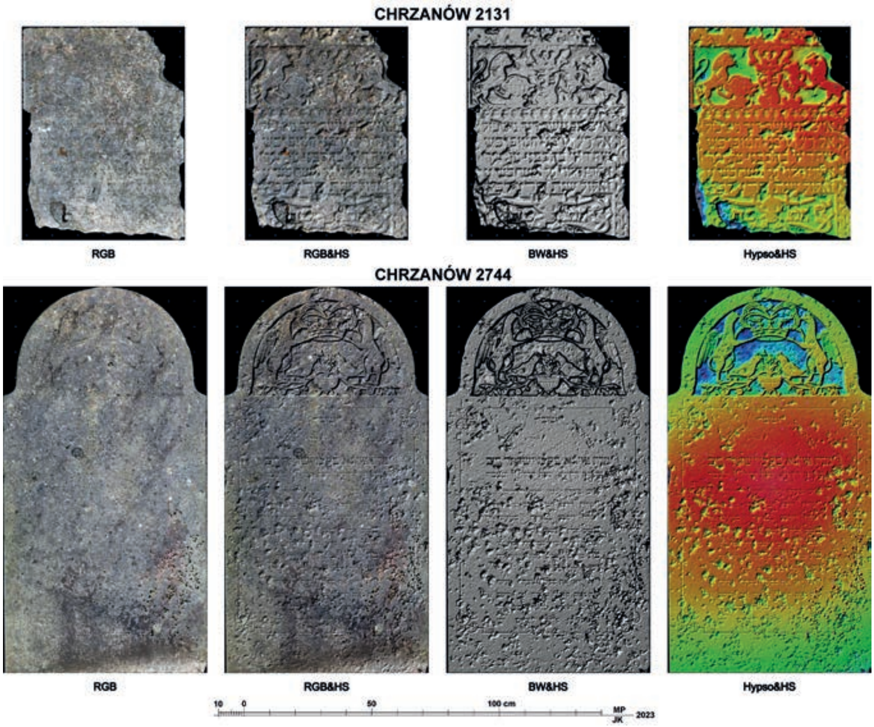

Fig. 9. Examples of less satisfactory results. Developed by Marta Pakowska and Jacek Kościuk

RGB – orthoimage in natural colors; VAT – Visualization Archeological Terrain; BW – Black and White orthoimage; HS – analytical Hill Shading; Hypso – Hypsometry.

most single letters or rarely whole words. In this case, the decisive factor preventing effective visualization of these inscriptions was the depth of the damage; if nothing of the original stone material has been preserved, it is difficult to expect that even the most inventive method will recreate what no longer exists. The reconstruction of such inscriptions can be based only on linguistic analyses and, even so, probably only to a limited extent.

It has been observed that even slabs made of the same material show very different degrees of erosion, which, of course, is related not only to the type of material from which the tombstones were made, their age, and local conditions (whether they were overturned and lay on the ground, were in the shade or exposed to direct sun or strong winds, etc.).

Taking into account the fact that stonemasons producing tombstones for individual cemeteries primarily used different local materials and

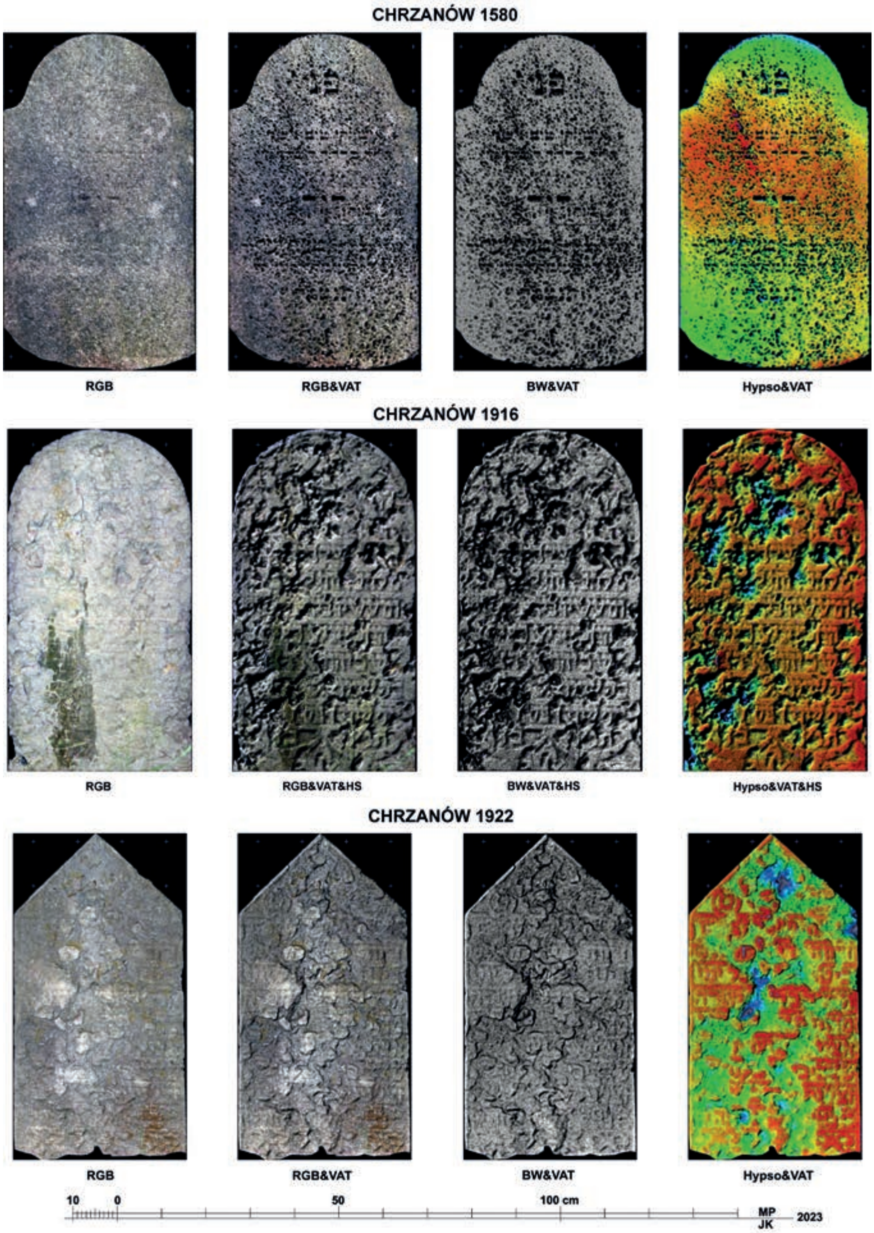

Fig. 10. Examples of the worst-preserved matzevot where the visualization methods used brought only very limited results. Developed by Marta Pakowska and Jacek Kościuk

RGB – orthoimage in natural colors; VAT – Visualization Archeological Terrain; BW – Black and White orthoimage; HS – analytical Hill Shading; Hypso – Hypsometry.

the fact that stone material obtained even from the same quarry may have different physicochemical parameters, it is difficult at this stage of research to judge the suitability of the proposed method due to the type of stone material.

Appendix
(translated by Anna Michałowska-Mycielska)

Fig. 8
CHRZANÓW 1525
Yehuda Leib, son of Yosef, died on 24 Shvat, 5592 (26 January 1832)

1. עדה
2. המצבה
3. על איש ישר הלך ואחז דרך
4. אמונים ולטוב יזכר' במרומים
5. מעשיו וצדקותיו הנעימים
6. עבד ד' באמת ובתמים החזי[ק]
7. ידי מטים ומשען הי' לאביונים
8. כ"ש מו' יהודא ליב ב"מ יוסף ז"ל
9. נ[פטר] בש"ט ך"ד שבט תקצ"ב לפ"ק
10. תמצב"ה

1. This matzevah
2. is a testimony
3. of a righteous man, <who> walked and held the way
4. of the pious <people>. May they be well remembered on High
5. his kind deeds and charity!
6. He served God in <a manner> honest and perfect. He fed
7. the impoverished and was a support to the poor <people>.
8. His esteemed name is *morenu* Yehuda Leib, son of Mr. Yosef of blessed memory.
9. He died in good fame on the 24th of Shvat 592 <year> according to the abbreviated count.
10. May his soul be bound in the bundle of the living!

NOTES:
Verse 10: cf. 1 Samuel 25:29.

CHRZANÓW 2528

Lea, daughter of Mordechai, died on 23 Tammuz 5602 (1 July 1842)

1. פ"ט
2. האשה חשוב' וצנוע'
3. במעשי' ופועלת טוב'
4. בימי' מרת לאה בת
5. כהר"ר מרדכי ז"ל
6. נפטרה בש"ט ך"ג תמוז
7. שנת תר"ב לפ"ק

1. Here is buried
2. a woman respectable and modest
3. in her deeds, doing good
4. through <all> her days. Mrs. Lea, daughter
5. of the esteemed Reb Mordechai of blessed memory.
6. She died in good fame on the 23rd of Tammuz
7. 602 year according to the abbreviated count.

CHRZANÓW 2605

Avraham, son of Shmuel, died on 8 Iyar, 5597 (13 May 1837)

1. פ' נ'
2. איש חי רב פעלים
3. בתורה ועבוד' עסק
4. כל ימים רצון אל
5. עשה באמ' ובתמים
6. ה"ה הרבני המופלג
7. מו' אברהם בהרבני
8. מוה"ר שמואל ז' נפ'
9. בש"ט ח' אייר תקצ"ז
10. תנצב"ה

1. Here is buried
2. a valiant man of great deeds,
3. engaged in <the study> of Torah and prayer
4. throughout all <his> days. The will of God
5. he fulfilled in <a manner> honest and perfect.
6. He is the eminent scholar,
7. *morenu* Avraham, son of the scholar
8. *morenu* Reb Shmuel of blessed memory. He died

9. in good fame on the 8th of Iyar 597 <year>.
10. May his soul be bound in the bundle of the living!

NOTES:
Verse 2: 2 Samuel 23:20.
Verse 10: cf. 1 Samuel 25:29.

Fig. 9
CHRZANÓW 2131
David, son of Aharon Halevi, died on 7 Elul, 5609 (25 August 1849)

1. פ"נ
2. איש תם וישר דוד משכיל
3. אל דל הרבני המופ' כ"ש
4. מו"ה דוד בהרבני מוהר"ר
5. אהרן הלוי ז"ל נפטר בש"ט
6. ז' אלול שנת תר"ט לפ"ק
7. תנצב"ה

1. Here is buried
2. a man perfect and upright. David considers
3. the poor. An outstanding scholar, his esteemed name is
4. *morenu* Mr. David, son of the scholar *morenu* Reb
5. Aharon Halevi of blessed memory. He died in good fame
6. On the 7th of Elul 609 year according to the abbreviated count.
7. May his soul be bound in the bundle of the living!

NOTES:
Verse 2: Job 1:1.
Verse 2–3: Psalm 41:2.
Verse 7: cf. 1 Samuel 25:29.

CHRZANÓW 2744
Toyba, daughter of Israel Dov, died on 28 Nisan, 5635 (3 May 1875)

1. פ"ט אשה חשובה וצדיקה
2. מרת טויבא בה"מ ישראל דוב
3. נפטרה ך"ח ניסן שנת תרל"ה לפ"ק תנצב"ה

…

1. Here is buried a respectable and righteous woman,
2. Mrs. Toyba, daughter of the deceased Israel Dov.

3. She died on the 28th of Nisan 635 year according to the abbreviated count. May her soul be bound in the bundle of the living!
…
[further part of inscription illegible, the first letters of the lines form the name of the deceased: טויבא בת ישראל דוב (Toyba, daughter of Israel Dov)]

NOTES:
Verse 3: cf. 1 Samuel 25:29.

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