

Necropolis as a Material Remembrance Space

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Abstract. The contemporary town planning and architecture abundantly create various public, private, production, recreation, and remembrance spaces, in order to comply with the material and spiritual needs of individuals and large communities alike. Remembrance places – necropolises – are important structural elements of cities that strongly affect the human psyche. Modern forms of spatial arrangement of necropolises search for solutions which will not only provide a rational (ergonomic, economic, ecological) material shape of the burial place, but also satisfy man's mental needs connected with the burial, funeral, veneration of the dead, visits to the cemetery, irrespective of man's age and physical fitness level.

Built over the centuries and still existing necropolises are a material and spiritual cultural heritage left to us by the past generations. Mostly built of symbolic stones – "remembrance stones", they make specific "libraries" with "stone books" for the present and future generations.

Keywords: general, design for all, necropolis, burial form, new burial forms, necropolis design.

1 Introduction

Remembrance places - necropolises are important structural elements of cities that strongly affect the human psyche. The spaces of remembrance places make the last tangible traces of every man's material existence – here, each man lives in his "last home" after death.

Necropolises are necessary for the living community to satisfy man's mental and spiritual needs related to the funeral and present in the final stage of life, i.e. the old age. Traditionally, necropolises have always been consecrated places, places of veneration of the dead, family education, and intergenerational bonding, places for meditation and relaxation for the living.

Due to the fact that our beloved relatives and friends are buried there, they become specific remembrance places - places for storing information about the ancestors, the roots of the community and individuals¹.

¹ [8] J.Charytonowicz, T.Lewandowski, P.Witczak, Postulate for accessibility of remembrance places to senior and disabled persons in the information age – MKEN'2004 in Łódź, Poland.

Within the city structure, necropolises primarily play an important practical role as places where to bury human remains, and a symbolic one – as remembrance places. The multifaceted aspect of the material shape of remembrance places – necropolises, applies to every man in the world, whatever their culture and religion, irrespective of any age limits or physical fitness levels.

2 A City Within a City, or a Necropolis Within a Metropolis

The origin of any selected urbanised centre is different in each case under analysis and varies in relation to the natural conditions, historical, political, economic, social, and other contexts. However, one common characteristics – and an invariable element of each of them, regardless of the time when they were established, is the existence of a necropolis. It is an integral, historical association of two spaces: the city (metropolis) and the cemetery (necropolis), in each urban community, regardless of the time or place on Earth.

2.1 Necropolis Within the City Structure

The city and the cemetery are two historical spatial structures, each characterised by certain autonomy and discrete spatial organisation, as confirmed by numerous examples of urbanised spaces (Figure.1).

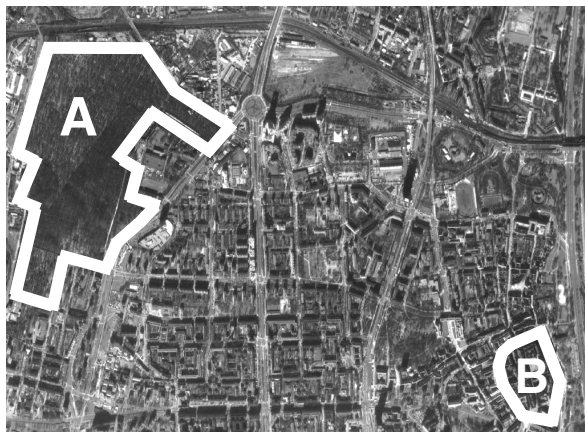


Fig. 1. Poland, Warsaw. Area A – the Powązki Cemetery is approximately 8 times greater than Area B – the Old Town². The scale of land use problems is clearly visible.

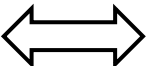
Necropolis is a structural element of the city that significantly affects the external spatial organisation, in particular the adjacent city areas. Despite its certain autonomy, necropolis is fully dependent on the space availability provided by the functional and spatial arrangement of the metropolis.

² Picture of Warsaw in 1m definition, obtained from IKONOS satellite on 6.03.2002; <http://www.bcgis.com/pl/>

2.2 Spatial Analogies

The “city of the living” – metropolis and the “city of the dead” – necropolis are characterised by many common and analogous elements of infrastructure and spatial organisation. Some examples of such common and analogous elements of infrastructure and spatial organisation in the city space (metropolis) and the cemetery (necropolis) are shown in Table 1.

Table 1. Comparison of spatial structures: examples of common and analogous elements of spatial organisation. Space availability problem.

METROPOLIS „CITY OF THE LIVING”		NECROPOLIS „CITY OF THE DEAD”
man		man
demography		demography
limited area		limited area
urban composition		urban composition
communication arrangement		communication arrangement
functional arrangement		functional arrangement
supplies		supplies
quarter		plot
Home (in Polish: DOM)		the last home, D.O.M.³
man		man
SPACE AVAILABILITY		

Analysing the design aspects of the elements constituting the city structure, one can observe a wide range of analogies with the elements constituting the cemetery structure. Necropolis, being part of an organised urban structure, in microscale faces the same problems that are encountered in the city’s macrostructure.

The scale of the problem, the complexity of each structure is relative to the size of the area it occupies and the elements of which it is comprised.

2.3 Burial of the Dead as a Demographic, Spatial, and Cultural Aspect

Many urban conurbations and cities in the world are experiencing a crisis with regard to the quality of urban structure spaces – including necropolis spaces, as reflected by their land use pathologies.

³ D.O.M. - <Latin abbrev. for Deo Optimo Maximo> To God, Most Good, Most Great; an inscription on Roman temples, later also on Christian churches and tombs, Słownik Wyrazów Obcych (Foreign Words Dictionary), PWN (1977).

Globally, population growth due to longer life expectancy results in urban sprawl, and that in turn translates into a greater demand for new cemeteries within urbanised centres. Increased numbers of city dwellers directly translate into more intensive city growth, which requires more rational land use strategies and utmost spatial economies. With the passage of time, as urban populations grow, the space available for burial of the dead will be further limited. Aware of this fact, urban communities will seek alternatives to the commonly applied traditional burial forms, either by modifying them or by adopting novel solutions yet unknown. Such measures aim at developing a future spatial arrangement model for necropolises, with a view to meeting long-term increased demand for burial sites caused by demographic factors.

The search for new spatial arrangements of necropolises is still ongoing. Such burial forms are sought that in the long run would solve the problem of the scarcity of new burial places due to the shrinking availability of land within cities and urban agglomerations that might be assigned for necropolises. This phenomenon is observed in all countries in the world.

Burial is a cultural issue, too. The various cultures have developed diversified burial forms derived from their religions and the relevant religious doctrines. Religion sets out the imperatives, preferences, recommendations, permissions, or prohibitions with regard to the given burial forms, thus determining the spatial solutions of necropolises.

Great contemporary monotheistic religions and funerary rites:

- **Christianity:**
 - Catholicism: prefers traditional burial rite, permits cremation
 - Protestantism: prefers cremation, permits traditional burial rite
 - Orthodox Faith: prescribes traditional burial rite, prohibits other burial forms
- **Islam:** prescribes traditional burial rite, prohibits other burial forms
- **Judaism:**
 - reformed: prefers traditional burial rite, permits cremation
 - orthodox: prescribes traditional burial rite, prohibits other burial forms
- **Buddhism:** prefers cremation as the highest-rank burial rite, permits body dismembering and sacrificing it on altars for animals (Tibet)

Great contemporary polytheistic religions and funerary rites:

- **Hinduism:** prescribes cremation as the only burial form conducive to reincarnation

Atheists – representing approximately 29% of the global population⁴, exercise many of the existing traditional and novel funerary forms: traditional horizontal or novel vertical burial, urn burial – cremation, carbonization, lyophylisation, hibernation, thanatopraxis, plastination, or burial in the outer space.

Of all the contemporarily applied funerary forms, cremation and urn burial are commonly acceptable to most religions and show the highest statistical growth dynamics.

⁴ [9] Malherbe M., *Les religions de l'Humanité*, 2-ème partie: Les religions, Criterion, Paris (1990,1992) – Religie Ludzkości. Leksykon, Polish edition by Znak (1999), p. 8.

2.4 Problems of the Contemporary Necropolis Spatial Organisation

Contemporary necropolises (existing and projected) are subject to a number of assessment criteria. They are the starting point for comparative studies aimed at finding the most effective solutions for the future, paying special attention to the number of burial places available for particular forms of burial, combined with such methods of spatial organization of cemeteries that would be best both for the buried dead, and for the living people visiting the cemeteries.

Assessment criteria for spatial organization of necropolises:

- **urban development** – means logical incorporation of a necropolis into the urban structure, while maintaining the **spatial order** and highlighting the exceptional character of the necropolis within the urban structure, being always a special place, „sacred” for many communities in the world
- **economy** – translates in fact into high prices of land within cities, the logical consequence of which is searching for such burial forms that could ensure the maximum number of burial places within the smallest possible area
- **ecology** – means searching for a burial form that is neutral to the environment, and could ensure safe co-existence of a necropolis in immediate proximity to other urban facilities, and minimise materials and energy consumption necessary for the given burial form per one funeral
- **ergonomics** – means the need to adjust the entire material environment to man’s psychophysical abilities, with a special focus on the needs of senior and disabled citizens, traditionally most frequent visitors to necropolises
- **availability for senior and disabled persons** – who are usually the most frequent visitors to necropolises, by considering **ergonomic** aspects of the design in order to remove architectural, urban planning, and functional barriers, as well as psychological barriers accompanying the old age and disability, thus respecting one of the fundamental human rights, that is the “right to participate in a burial, and to visit a grave” in the cemetery
- **pathology prevention** which means compliance with the binding standards and legal regulations concerning grave dimensions, minimum spaces between graves, minimum width of alleys and passages; prevention of the practices of „enhancing” the existing cemeteries through shortening of the waiting period between successive burials, or through increasing the number of graves at the expense of protective green areas; prevention of thefts and vandalism of burial sites
- **user safety and comfort** are strictly connected with the size of the cemetery (from several to several hundred hectares) as well as its legible functional and spatial organization, and the system of visual information signs which make it easier to move around the necropolis (sense of direction)
- **equipment of the cemetery with technical infrastructure, sanitary facilities, communication facilities** – access roads and parking lots adapted to the needs of all users, bus service within mega-necropolises with the fleet adapted to the needs of seniors and the disabled

- **comprehensive service** – in terms of the market economy, a necropolis is a modern enterprise offering a wide range of services to families of the dead, which manages the cemetery ensuring full transparency of data under ISO systems
- **quality of law** – legislation that takes account of modern forms of burial, spatial organization of necropolises, and land ownership
- **necropolis management model** – religious or municipal, defines the management and customer service standards, as well as spatial solutions

All the assessment criteria must take into account the **primary factor**, that is the burial form being a consequence of the religion practised and its related religious doctrine and/or outlook on life.

3 Necropolis as a Remembrance Place – “Stone Library”

For thousands of years, man has revered the dead and paid them tribute through funerary rites, burial forms, and spatial arrangement of necropolises. Traditionally, necropolises have always been consecrated places - sacrum, places of veneration of the dead, family education, and intergenerational bonding, places for reflection and memories and reveries over the passage of time and its „contemporary heroes”. Primarily, necropolises are the places of remembrance of the dead.

Urban sociologists claim that “... The cemetery is always (...) a keystone for three social groups: those who have already passed away; the living, and lastly, those to be born”⁵. It is a unique link between generations, based on tradition, and what is vital – on the relationship between the world of the living and the world of the dead, which reflects the cultural standards of the society.

The material spatial shape of remembrance places – necropolises, has undergone and still undergoes many transformations. People continue to build tomb structures to commemorate the dead, thus referring to the long-established and powerful local traditions. Encrypted in such tomb structures is the centuries-old remembrance of the dead. The tombs represent characteristic pieces of the broad sepulchral art.

The material shape of remembrance places – necropolises – is determined by:

- **religious status** – i.e. declared non-believers (atheism), or followers of the given religion, whose faith doctrines precisely specify the preferred burial form (as described in subsection 2.3)
- **burial form** – determines the tomb’s architecture, size, shape, and plots distribution, and, consequently, the form and spatial composition plan of the whole cemetery design, i.e. the spatial organisation of the necropolis
- **construction materials** and the skills of taking advantage of their properties

3.1 Contemporary Forms of Burial

The commonly practised forms of burial are historical, most ancient, timeless forms, accepted by most communities and religions. These include:

⁵ [3] Jałowiecki B., Szczepański M.S., *Miasto i przestrzeń w perspektywie socjologicznej*, (The City and Space in Sociological Perspective) Scholar Publishing House, Warsaw (2002) p. 317.

- **inhumation** – traditional burial
- **urn burial** – cremation

Novel funerary rites are the modern burial forms that have appeared very recently. In the future, as these burial forms gain popularity, we will deal with some revolutionary changes, e.g.:

- **inhumation in the upright position**
- **carbonization** – artificial precious stone
- **lyophylisation** – garden cemetery
- **hibernation** – cold-store cemetery
- **thanatopraxis** – formolisation, embalming
- **plastination** – plastinates
- **burial in the outer space** – cemeteries in orbits, planets
- **cybernecropolis** – www.cemetery.com – virtual cemeteries

Of all commonly practised funerary rites, **cremation and urn burial deserve special interest**. There has been developed a series of novel kinds of funerals (ashes kept in urns, or strewn over the sea, from a plane, or over mountains) and burial (urns buried in pit graves, columbaria, cineraria, or remembrance gardens) which offer the widest possibilities of spatial arrangement of necropolises. Some advantages of urn burial include: reduced dimensions, low land consumption, environmental harmlessness, low cost (about 25% cost of inhumation), single urn standard. Urn cemeteries do not cause ground water pollution. Small dimensions of graves cause that the urn cemetery is perceived as very spacious. When equipped with the “piling” feature, burial places under or above the ground (columbaria), it seems one of the least land-consuming forms of burial that allows, on the saved area, to properly design such spatial development components as greeneries, traffic systems, and other facilities. Due to its space-wise functionality, ergonomic, economical, ecological, social and cultural advantages, urn burial will become the burial of the future. As indicated by statistics, this form of burial tends to be the most rapidly developing, and has already become predominant in many countries.

3.2 New Forms of Spatial Organisation of Necropolises

The modern spatial arrangement solutions for necropolises include several new types of cemeteries:

- **type 1** – “forest cemetery”, “cemetery park”, “cemetery garden” – characterised by percentage dominance of greenery area over the tomb surface area, and pedestrian and motorist communications.
- **type 2** – “cemetery - town” – a trend in cemetery design of “cities of the dead” modelled after cities of “the living”, with analogous spatial development arrangements and space infrastructure components.
- **type 3** – “cemetery – sculpture” – type of cemeteries being great artistic creations, forming original and unique spatial solutions, e.g. columbaria in the form of monumental sculptures.
- **type 4** – “multi-rite cemetery” – type of municipal necropolises with various spatial arrangements, from traditional forms of development to the latest

tendencies of the above types 1 – 3. They are ecumenical cemeteries, managed by elective secular bodies.

- **type 5 – “virtual cemetery”** – is a burial place in the new format of virtual space. It contributes to the new phenomenon of the **duality of the cult of the dead**. A grave in the cyberspace is a multimedia form of worship of the dead within a wide social circle, while a grave in the real life space – within the narrow family circle.

3.3 “Stone Libraries”

Stone is the oldest material used by man to make tools, and the oldest natural and easily available construction material. It symbolises power, strength, durability. The world’s oldest buildings which have survived until the present day are built of stone.

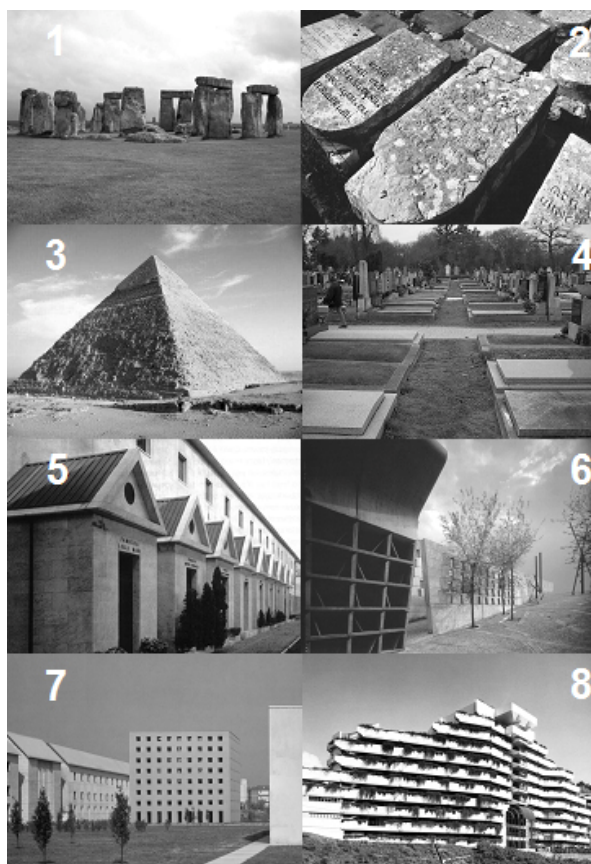


Fig. 2-9. Historical and contemporary spatial sepulchral buildings in the world ⁶: 1 – Stonehenge/Great Britain; 2 – Jerusalem/Israel; 3 – Giza-Cairo/Egypt; 4 – Vienna/Austria; 5,7 – Modena/Italy; 6 – Barcelona/Spain; 8 – Hong Kong/China

⁶ From the archive of authors.

As regards the spatial organisation of necropolises, stone has always played a leading role. Before man had learned to bury bodies of the dead, they were first covered with a stone. Next, burying ground tombs were symbolically marked with a stone. Once the Sumerians, approx. 3500 years BC, had invented cuneiform script, stone steles and tombs began to feature simple inscriptions, then extensive epitaphs – written information of the deceased. They marked the beginning of “memorial stones”, or “stone libraries”.

As construction skills and techniques developed, great civilisations built stone tombs and mausoleums of the rulers and their families that have never ceased to raise admiration. New masonry tools and techniques helped create unique forms of the art of sepulchral sculpture (reliefs, bas-reliefs, figural sculptures, sculptural decorations), which flourished in the 19th century. Artificial stone – from the mid-20th century, concrete and ferroconcrete helped create on a grand scale novel tomb solutions.

Natural stone and artificial stone are the most popular construction materials used to build single tombs, erect great sepulchral structures, and implement whole spatial necropolis designs.

Remembrance places – real, symbolic, or virtual necropolises created over the centuries, represent the material and spiritual cultural heritage left to us by the past generations, and exert a very strong influence on the human psyche. Each necropolis is a database of the dead buried there, a picture left for posterity of the passing communities and their outstanding individuals. Most of them are comprised of written symbolic stones – “memorial stones” – and create a kind of “libraries” with “stone books” for the contemporary and future generations. These books are slowly changing their traditional sizes and formats, adjusting to the requirements and expectations of the contemporary world.

4 Conclusions

Necropolis is a material remembrance space which many people in the world immediately identify with a flat burial surface. In fact, among the contemporary spatial development and architectural solutions designed for necropolises, a strong emphasis is on spatial forms. Necropolis, just like the metropolis, prefers cubage solutions. Contemporary cemetery designs (remembrance places) are departing from horizontal surface solutions and replacing them with vertical and spatial solutions. Once again the analogy between the spatial development of the “city of the living” – metropolis, and the “city of the dead” – necropolis, becomes highly evident.

Initially, low and land-consuming sepulchral structures were built (e.g. single-level tombs), then followed by high tomb-piling sepulchral structures (e.g. multilevel tombs, vaults, tower cemeteries) that utilise all contemporarily available technical and material solutions. The floor space ratio is growing.

Some important phenomena observed in all contemporary necropolises include **minimised size of the burial casket and burial place, and vertical spatial arrangements** (compacting) aimed at increasing the number of new burial places and lessening (through concentration) possible environmental threats. These highly powerful tendencies are gaining momentum in all newly-developed and generally accessible necropolises in large urban conurbations in the world.

References

1. Heathcote, E.: *Monument Builders. Modern Architecture and Death*. London: Academy Editions (1999)
2. Jałowiecki B., Szczepański M.S., *Miasto i przestrzeń w perspektywie socjologicznej*, Wydawnictwo naukowe Scholar, Warszawa (2002)
3. Lewandowski, T.: New forms of spatial development of necropolises in Europe - Nowe formy organizacji przestrzeni nekropolii w Europie, *Zastosowania ergonomii*, Zielona Góra, Nr 1-2, pp. 141–158 (2004)
4. Lewandowski, T., Charytonowicz, J.: Forms of necropolises in the computer era, HCI 2005. In: 11th International Conference on Human Computer Interaction, Las Vegas, USA, (July 22-27, 2005) CD, ISBN 0-8058-5897-5 paper 53
5. Lewandowski, T., Charytonowicz, J.: Necropolis and its structural elements - Nekropolia i jej elementy strukturalne, *Zastosowania ergonomii*, *Kwartalnik*, Zielona Góra, Nr 1-3, pp. 131–145 (2005)
6. Lewandowski, T., Charytonowicz, J.: Search for new form of burial: horizontal or vertical?, *Poszukiwania nowych form pochówku: poziomo czy pionowo?*, *Zastosowania ergonomii*, *Kwartalnik*, Zielona Góra, Nr 1-3, pp. 261–272 (2006)
7. Charytonowicz, J., Lewandowski, T., Witczak, P.: Postulate for accessibility of remembrance places to senior and disabled persons in the information age - MKEN' 2004, *Ergonomia niepełnosprawnym w wieku informacji*, Łódź, Poland, pp. 77–88 (2004)
8. Malherbe, M.: *Les religions de l' Humanite*, 2-eme partie: *Les religions*, Criterion, Paris 1990,1992 - *Religie Ludzkości*. Leksykon, polish edition by Znak (1999)