

# The Circulation System of Buildings: A Key Determinant of Social Behaviour and the Quality of Social and Healthcare for People with Cognitive Impairments

MICHAL KACEJ, ZUZANA ČEREŠŇOVÁ



DOI: <https://doi.org/10.31577/SN.2023.3.23> © Ústav etnológie a sociálnej antropológie SAV, v. v. i.  
© 2023, Michal Kacej, Zuzana Čerešňová. This is an open access article licensed under the Creative Commons

*Michal Kacej, Faculty of Architecture and Design, Slovak University of Technology, Námestie slobody 19, 812 45 Bratislava, Slovakia; e-mail: [michal.kacej@stuba.sk](mailto:michal.kacej@stuba.sk)  
Zuzana Čerešňová, Faculty of Architecture and Design, Slovak University of Technology, Námestie slobody 19, 812 45 Bratislava, Slovakia; e-mail: [zuzana.ceresnova@stuba.sk](mailto:zuzana.ceresnova@stuba.sk)*

The article focuses on the impacts of the built environment of healthcare and social care facilities on people with cognitive impairments. It emphasizes that the building's circulation system has the most significant influence on the quality of care provided and social behaviour. A variety of circulation systems and the reasons supporting their design are examined through examples, including Robert Hooke's redesign of Bethlem Hospital, Thomas Story Kirkbride's linear circulation system, Jeremy Bentham's radial circulation system, and others. The article provides a historical overview of the typology of purpose-built social and healthcare facilities for people with disabilities and describes the process of deinstitutionalization as healthcare providers turned towards community-based services for people with mental illness and cognitive impairments. In conclusion, the article outlines a vision of possible solutions that take into account the current economic and technological requirements of care facilities.

*Keywords:* circulation system, social care facilities, healthcare facilities, deinstitutionalization

*How to cite:* Kacej, M., Čerešňová, Z. (2023). The Circulation System of Buildings: A Key Determinant of Social Behaviour and the Quality of Social and Healthcare for People with Cognitive Impairments. *Slovenský národopis*, 71(3), 244–260. DOI: <https://doi.org/10.31577/SN.2023.3.23>

## Introduction

The topic of health and social care is currently a subject of extensive discussion, primarily due to the high number of facilities where these services are provided.

Additionally, there is a notable issue with the low quality of the built environment in which recipients of healthcare and social services reside. This paper is directly linked to new typological research. Examining the impact of building circulation systems on people who are dependent on social and health care, as well as investigating the development of the circulation system in this typological species, is directly associated with the national typological research task.

In 2022, the Ministry of Labor, Social Affairs, and Family of the Slovak Republic tasked the Faculty of Architecture and Design, including the authors of this manuscript, with a research assignment, as part of the ongoing reform of social services in Slovakia. The typological research task was to propose an architectural design for a newly introduced type of facility known as a health and social care facility. The goal of this study is to comprehensively survey the most significant structures related to the inception of buildings dedicated to healthcare and social care. This is achieved through the review of contemporary scientific articles as well as historical texts authored by architects.

Certain terms, such as “asylum” or “lunatic”, may be considered offensive under contemporary sociopolitical standards, and future generations may find today’s language insensitive as well. For this article, we use language that reflects the context of the historical period being studied, as do historians. This scientific approach allows the terminology to provide a cultural context for the reader. As this article refers to the evolution of health and social care, we use currently accepted and modern terms such as “mental disorders” and “psychiatric hospital”.

The contribution of both the theoretical and typological research tasks lies in their critical evaluation and determination of the future directions for new social healthcare services in Slovakia. The aim is to ensure the choice of a specific circulatory system has a positive impact on the comfort of individuals and enhances the quality of social and healthcare services for people with cognitive impairments.

In terms of typological research, the outcome is an architectural study prepared for the Ministry of Labor, Social Affairs, and Family of Slovak republic, which serves as a new prototype project for the construction of health and social care facilities. Meanwhile, the result of this theoretical research is to summarize the findings and contribute clear arguments, following the pattern of all works cited in this article.

## The evolution of our understanding of mental disability

Mental disorders have a dual nature, medical and social. They can be considered both an individual disorder with a variety of causes and as complex systems of signs and sociolinguistic meanings. The identification of people with mental disorders often remained controversial in individual cases. Diagnoses in the past were inconsistent, and views how to deal with “madness” ranged from cautious leniency to rapid incarceration. By the mid-nineteenth century, patients were no longer subjected to inhumane treatment. Mental disorder was considered a disease that could be treated

through human intervention, rather than seen from a spiritual point of view. The design and construction of purpose-built social and healthcare facilities can be seen as the beginning of the development of this type of approach. The first architectural models of asylums aimed to provide a more humane approach to the treatment of people with mental illness. However, their grandiose design, based on separation and hierarchy, ultimately led to isolation and failure. The nexus between the building circulation systems and people's mental health represents a formidable challenge, particularly within the realm of mental illness. This predicament has persisted since the 1960s. Mental hospitals created enormous barriers to independence and mental health, while stigmatizing their residents. "As knowledge about these problems developed in Europe and North America, most of these institutions were dismantled, and new policies of community living and short-term treatment emerged" (Steinfeld, Maisel, 2012: 3).

"In the 1970s and 1980s, homelessness became a crisis in American cities. Estimates of the percentage of homeless people suffering from mental illness range from 25 to 40%" (Yanni, 2007: 149). The Communities Mental Health Act<sup>1</sup> of 1963 proposed developing a new architectural approach based on community centres (*US Public Law 88-164/77 STAT.*, 1963: 290–294), but the proposed reforms were never implemented. In recent decades, mental health treatment has witnessed a shift toward pharmacological and biological treatment, leaving a considerable gap in the field of architecture. "The relationship between the **social order and spatial order** of society is one of the most important topics in universal design. Ordering space is achieved by claiming space through protective or legal boundaries that control access to the resources within" (Steinfeld, Maisel, 2012: 9).

### First axis of symmetry as gender separator

The identity of the first institution primarily dedicated to the treatment of people with mental disorders in the western world remains uncertain due to limited documentation and the gradual evolution of most potential sites. Blum's Institute, with a capacity of ten places, was the first facility for people with mental and intellectual disabilities on the territory of Slovakia. It was established in 1898 in Plešivec (Cangár, 2018: 16). This and other similar facilities served as asylum for marginalized populations or as clinical centers for the treatment of various medical and psychiatric conditions.

"In 1859 John Arlidge argued that most, if not all, lunatic asylums were based on the design of Bethlem Hospital, itself based on the monasteries that had provided the early asylums for the insane" (Orser, Piddock, 2007: 122). As the most famous social and health care facility for the "insane" in the western world, Bethlem deserves consideration as an architectural model based on a **straight linear circulation system**. It also stands as an institutional model.

---

1 Community Mental Health Act, signed by J. F. Kennedy.

Bethlem raised a number of topics that persisted into the late nineteenth century, such as the reasoning behind a symmetrical architectural design with one axis in the centre of the frontal facade. It was commissioned by the monks of the Priory of the New Order of Bethlehem, who had been caring for mentally ill patients since the Middle Ages, as a purpose-built institution to provide health and social care for people who showed signs of mental illness, as opposed to physical disabilities. “In 1674 authorities sought a new building; they engaged Robert Hooke, who had worked on major buildings with Wren and Hawksmoor and had himself designed the Royal College of Physicians” (Mindham, 2021: 181). Hooke designed a centrally organized symmetrical building, flanked by two wings of elongated ward blocks with central pediments, and terminated by formalistic forward projections. This composition was suitable to break the monotonous long facade. Uniaxial symmetry was mainly the result of efforts to separate men and women within the facility. Due to this composition, the building had an architectural expression that was, at least, iconic. It is unsurprising that Robert Hooke, along with his colleagues Christopher Wren and his apprentice Nicholas Hawksmoor – who between them undertook the construction of many of England’s most significant buildings – employed their signature architectural style, honed through designing structures for both secular and religious institutions, when creating this new type of building. As a result, the semiotics of power architecture was implemented into the typology of charitable buildings; asylums resembled palaces, while palaces started resemble asylums.

“The new hospital was designed to accommodate 136 patients on two floors, with equal provision for men and women” (Mindham, 2021: 181). Hooke opted for linear circulation system with single-pile construction method that merged the monastic design of the patients’ rooms with a wide corridor resembling the grand galleries of opulent residences. The gallery and corridor that spanned the length of the building, with rooms for patients only on one side, allowed for the flow of gentle air currents, suggesting that the architects believed fresh air was therapeutic. “Each cell had a small barred window facing south with no glazing. The galleries faced north and were glazed” (ibid.: 181). The social aspect of this spatial composition and circulation system, which influenced the design of subsequent psychiatric hospitals, is vividly illustrated by the English painter William Hogarth in the eighth painting of his series *The Rake’s Progress*, titled “The Madhouse”. Wings perpendicular to the main structure were added with double-loaded corridors, which were more economical but less effective for ventilation. “Bethlem’s population rose, and the Moorfields building was quickly overcrowded. The institution moved to Southwark in 1815, where the architect James Lewis demonstrated his up-to-date knowledge of architectural style” (Yanni, 2007: 19). In terms of spatial arrangement and the air circulation system selection, James Lewis’s new building was identical to Robert Hook’s previous one, despite the change in architectural expression and increased capacity.

Asylums posed a paradox in terms of their architectural design. On the one hand, they were expected to be modest and practical, reflecting the financial limitations of the state. On the other hand, they could also be grand and impressive, elevating the

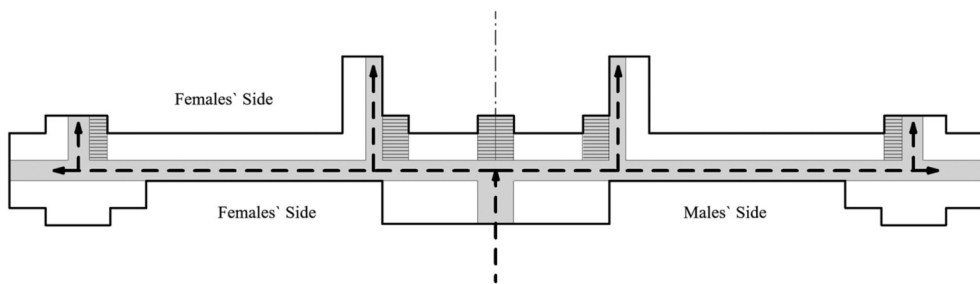


Fig. 1. Circulation system of New Bethlem Hospital in St. George's Fields, designed by James Lewis, engraving by J. Le Keux – source: <https://wellcomecollection.org/works/jjtpc4qv>

status of the hospital in society and gaining respect as a civic institution. This level of dignity and magnificence would also instil in patients' families the belief that their loved ones were being cared for by a gracious and well-appointed institution. Christine Stevenson (2001) compared the concept of the mansion in relation to British lunatic asylums, highlighting how the long corridors used for strolling inside the building were called "galleries", the same term used for the picture galleries in luxurious country houses. Doctors were seen as lords of the manor, attendants acted as domestic staff, and patients were like serfs who were dependent on the institution for everything. The asylums even entertained visitors, mimicking the social role of the manor houses and perpetuating social hierarchy within the walls of the asylum. Linear circulation system built around wide corridors, which were intended to serve as day rooms for patients were also used in other asylums, such as new building of St Luke's Hospital for Lunatics, designed by George Dance the Elder and completed by his son, George Dance the Younger.

During the nineteenth century, the number of asylums increased significantly. The "golden age" of asylums was the result of a confluence of factors. "Historian and sociologist Andrew Scull has searched for grand economic and societal causes for the rise of the asylum and maintains that an overall uptick in affluence, the shift to a service economy, and nascent consumerism" (Yanni, 2007: 5). Psychiatric hospitals were initially designed to assume responsibilities that were once the responsibility of families. Asylums tended to house a higher proportion of single individuals who lacked family support. During industrialization and the rise of a service-based economy, the social pressure on families with mentally ill members increased massively. As families became smaller and more family members worked away from the home in factories or other specialist jobs, their ability to care for older or sick relatives was reduced. Institutionalization was deemed culturally acceptable because doctors believed that mental illness required professional intervention and out-of-home care. They also believed that mental illness needed to be addressed immediately after its onset and that institutionalization was the only path to recovery; domestic settings were thus deemed unsuitable for those suffering from mental illness.

## The second axis of symmetry as scheme of social hierarchy

In the early nineteenth century, the authorities in Glasgow and Edinburgh, in response to the “Scottish Enlightenment”, endeavored to establish modern and progressive institutions for the treatment of mental illness. One of the main challenges for architects designing asylums was to create spaces that reflected the social class system. The ideas of the day about asylum architecture and social hierarchy are exemplified by two buildings which no longer exist today: the Edinburgh Lunatic Asylum designed by Robert Reid and the Glasgow Lunatic Asylum designed by William Stark. It is likely that the relatively high costs prevented these concepts from being replicated in other countries.

Edinburgh Lunatic Asylum was constructed in 1813. Robert Reid conducted a meticulous evaluation of spatial division and patient classification in his asylum. He chose a quadrangular layout based on two axes of symmetry, consisting of three-story center buildings with corridors on either side leading to two-story blocks at the corners. In his book *Observations on the Structure of Hospitals for the Treatment of Lunatics...*, published in 1809, Reid explained this arrangement, which facilitated the segregation of patients according to the severity of their condition and their social status. “The four corner buildings are proposed for the accommodation of patients of a higher rank in life than either of the classes lodged in any of the large buildings and who might be permitted to walk and amuse themselves in the garden ground[s]” (Reid, 1809: 10–11). It was the idea of a double hierarchization that created the need for a second axis of symmetry, and this subsequently strengthened the central point as a point of axial symmetry. The result is **an atrial type focal circulation system**, the division of which into quadrants was evident not only in the composition of the building structure but also within the concept of the atrium. The separation of individual departments was solved in various ways, as Reid wrote: “the galleries or passages leading to the sleeping rooms should be wide, but at the same time so constructed, that they may be shut in by doors at the ends” (Reid, 1809: 13–14). In addition to the main building, there were also smaller houses designed for more wealthier patients.

Glasgow Lunatic Asylum, designed by William Stark, was built on a **radial type of focal circulation** system, with a Greek cross-plan and a circular staircase in the middle. The central area was illuminated by natural light from a glass dome. In his book *Remarks on the Construction of Public Hospitals for the Cure of Mental Derangement*, published in 1810, Stark wrote: “In some asylums, the males and females are distributed in wards which are contiguous, or which are separated only by a common passage, or staircase, a necessary consequence of this arrangement is that when the men are at liberty, the women must be locked up, and vice versa” (Stark, 1810, 14–15). Stark systematically classified patients not only by sex but also by severity of their disease, and even presented the categories and locations of the patients in a plan, showing each category from the central point of the building. Stark divided the spaces into “higher rank” and “lower rank” based on social standing, then

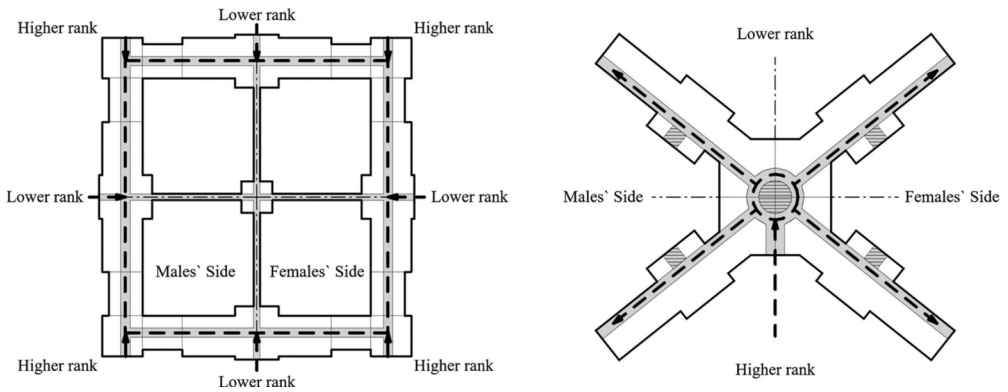


Fig. 2. Circulation systems of a) *Edinburgh Lunatic Asylum* designed by Robert Reid, engraving by R. Scott – source: <https://wellcomecollection.org/works/njqgqqdc> b) *Glasgow Lunatic Asylum* designed by William Stark, from Thompson, John D. & Goldin, Grace (1975). *The Hospital. A Social and Architectural History*. Yale University Press, New Haven and London. ISBN 0-300-0 1829-0, figure 39

subdivided them into “convalescent” and “ordinary state”. Class distinctions were deeply ingrained in asylum organization, as he further explained: “It will be easily understood, that, in a hospital so contrived, any subdivision, or further separation of the patients, according to their rank, or to the state of their disease, must multiply the causes of restraint and of confinement, and its consequences, I have had occasion to notice, are highly irritating and distressing” (Stark, 1810: 15).

### Focal point as the concept of social control

In the nineteenth century, “asylums and prisons have often been compared by contemporary observers, since both building types exemplify architecture in the service of social control: individuals are managed and categorized through the use of surveillance” (Yanni, 2007: 45). Asylums and prisons both served as examples of architecture for social control, but with differences in design and philosophy. While any building could be adapted to monitor and manage its occupants, one notable instance of architecture explicitly created for this purpose is the Panopticon<sup>2</sup>, a design by English philosopher and social theorist Jeremy Bentham (the first example was completed in 1785) that has gained significant renown. “The panoptical structure was designed as a circle of inward-looking cells and one observation tower for the guardian to watch the prisoners without being watched” (Cantaş, Can, 2022: 122). The Panopticon plan exemplified architecture designed for control tailored to the subjugation of criminals. “The goal of the Panopticon was to separate criminals, keeping them from communicating with other criminals and to keep them under

2 The term “panopticon” comes from the Greek word “panoptes”, meaning “all-seeing”: <https://www.britannica.com/topic/Medusa-Greek-mythology>

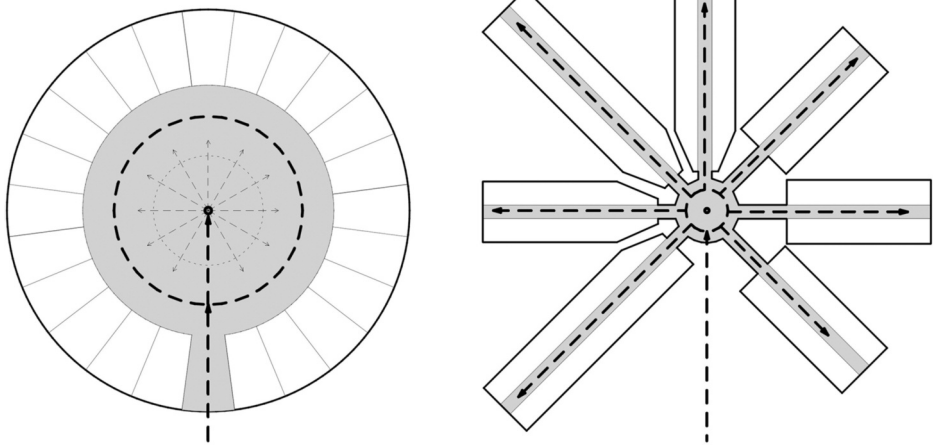


Fig. 3. Circulation systems scheme of a) Panopticon designed by Jeremy Bentham, from drawing by Willey Reveley, 1791. b) Eastern State Penitentiary designed by John Haviland

constant surveillance as a way to ensure that they would “behave” (Steinfeld, Maisel, 2012: 13). The design did not allow for the separation of men and women or the removal of noisy patients from quiet ones, which concerned psychiatrists who treated people with cognitive impairment. According to David J. Rothman, “Jeremy Bentham’s 1791 design for Panopticon was not given greater prominence on asylum, while his emphasis on the need for the segregation, employment, and surveillance of the criminal offender inspired the American prison” (Rothman, 2002: xlv). The highlight of the implementation of the **radial-type focal circulation system** can be found in the reformist prisons in Britain, and later in the US. The Eastern State Penitentiary, designed by John Haviland, opened in 1829 and was the world’s first penitentiary to enforce solitary confinement. It featured a central rotunda with cell blocks radiating out from the centre, each prisoner occupying his own cell. The Eastern State Penitentiary, with its implemented reform system, also called the “Pennsylvania system”, or the “segregation system”, and incorporated design elements elements – mainly the circulation system – that served as a model for many subsequent prison designs worldwide. As a result of its reformative measures and unique architectural features, it attained widespread acclaim as an exemplary penitentiary. It appears that asylum designers did not like the radial plan as much as prison designers did. Although the radial plan had advantages, such as shorter wards for ventilation and the use of hallways as dayrooms, it was not effective in separating the most extreme cases from the quieter patients. Asylums sought to convey moral treatment, which was the opposite of designs for imprisonment and solitary confinement represented by the radial type of focal circulation system.



## Kirkbride Plan

During the 1840s and 1850s, there was a widespread belief that architecture and a pleasant environment could have a positive impact on patients. Until then, no guidelines had been set for the construction of asylums in America. Despite their familiarity with contemporary European treatment principles, the nineteenth-century developers of American asylums were constrained in their ability to derive insights from European institutional architecture. This was due to the fact that many European institutions repurposed existing structures such as estates, monasteries, and prisons, providing a model that did not suit the American context. However, Dr. Thomas S. Kirkbride was a strong believer in the idea that a new building type was crucial for the cure of mental illness. He was in charge of a high-profile hospital and advised numerous doctors and architects. His most influential work was published in 1854 with the title *On the Construction, Organization, and General Arrangements of Hospitals for the Insane* (Pérez-Fernández, López-Muñoz, 2019: 3). According to his perspective, the design of asylums should adhere to specific guidelines that would enhance the lodgings and circumstances of patients and thus facilitate their psychological recovery in a more effective manner.

This blueprint became widely recognized as the Kirkbride Plan. He advocated for moral treatment, which required patients to follow regular schedules to internalize self-control. The design of hospitals and their circulation system reinforced this control. The patients were freed, given respect and encouraged to perform work tasks such as farming, carpentry and laundry. Kirkbride suggested his belief that the best and most economical form of that kind of institution is center building with wings on each side, suitable for the classification and comfort of the patients (Kirkbride, 1880: 12). The classification proposed by him is the same as proposed by William Stark, starting with classification by gender into men and women, followed by classification according to the severity of the diagnosis. The circulation system proposed by Kirkbride was the same as that proposed by Robert Hooke and James Lewis, but with one fundamental difference. Both Hook's Bethlem Hospital and Lewis's New Bethlem Hospital were designed so that the gallery was located on the facade and the wards were located on one side only. If the linear circulation system were to be economically efficient, and not create too long a corridor for the desired capacity, it was necessary to locate rooms on both sides so that the gallery became a corridor, lacking light and fresh air. Kirkbride was aware that the darkest and worst-ventilated parts of building are places where a wing joins the central building, or where one wing comes directly in contact with another (Kirkbride, 1880: 13). The first problem could be easily and effectually solved by leaving an open space on each side of about eight feet (*ibid.*: 13). The second problem could be mitigated by positioning the second wing parallel to the first, and introducing a recess of a specific extent to maintain uninterrupted corridor access at both extremities, instead of allowing direct contact between the two wings (*ibid.*: 13). In this case, a wing means a subdivision element of the building. The result of those ideas is the Kirkbride Plan,

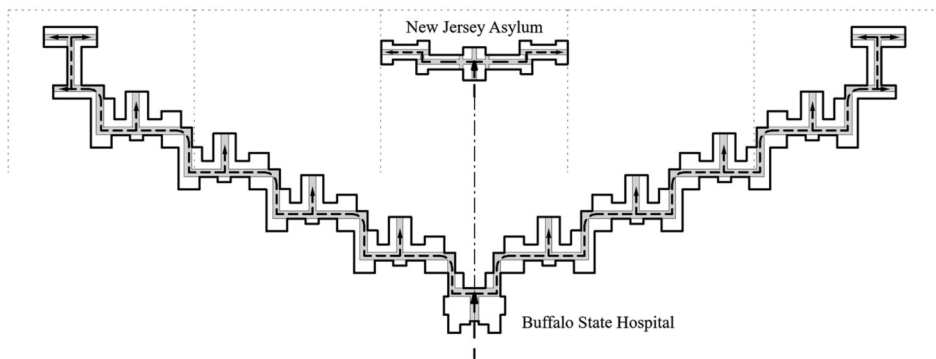


Fig. 4. Scale and circulation system comparison of New Jersey State Lunatic Asylum in Trenton, 1847, designed by John Notman (145 meters before addition) and Buffalo State Hospital for the Insane, 1871, designed by H. H. Richardson, F. L. Olmsted and C. Vaux (length 670 meters)

a segmented linear circulation system in obtuse angled V shape, ideal for the purposes of an asylum. Trenton State Hospital, designed by John Notman, which was the first public mental hospital in the state of New Jersey, is an example of this. It was founded by Dorothea Dix, an advocate and activist for better and more humane treatment of the mentally ill (Lipuma, 2015: 17).

In the second half of the century, asylums exploded in number and size, “In 1851, the AMSAII had stated that to fulfill their therapeutic role, asylums should house no more than 250 patients. At the annual meeting in April 1866, its members allowed hospitals to house 600 patients. The issue caused intense debate: the vote was eight to six in favor of expanding the size of institutions. Kirkbride dissented” (Yanni, 2007: 105). Due to that decision, the structure accommodated more than 600 individuals within a singular and substantial edifice. As state-run psychiatric institutions expanded, so did the criticism directed at them. “The institutions are examples of attempts to change the social order by using spatial practices” (Steinfeld, Maisel, 2012: 12).

Over time, these institutions began to embody the antithesis of their original purpose. Rather than symbolizing the government’s benevolence, their formalistic and extravagant nature came to represent the prodigality associated with nineteenth-century psychiatry. Buffalo State Hospital for the Insane, designed by Henry Hobson Richardson, Frederick Law Olmsted, and Calvert Vaux, perfectly reflects this situation, while according to Richard Dewey, “twin ornamental towers estimated to cost 70.000 USD” (Dewey, 2012: 130), which is almost 4% of total construction costs.<sup>3</sup> The serious problems with overcrowding of asylums is presented to us by a number of period photographs of overcrowded rooms and even rooms and even corridors overcrowded with beds. According to Rosanne L. Higgins, Buffalo State Hospital, also known as the Richardson Olmsted Complex, “was designed to house 600 patients; overcrowding

3 According to Karla Yanni, total construction costs on Buffalo State Hospital was 1.800.000 USD.

soon became a problem. By the turn of the century, the facility averaged over 1,800 patients” (Higgins, 2019). That is why “linear insane asylums are an extreme case of these changing fortunes over time: considered ideal at the time of their invention, they are now considered nearly useless” (Yanni, 2007: 152). During the latter part of the nineteenth century, the Kirkbride architectural style had lost its appeal, primarily due to the state-funded hospitals experiencing substantial budget reductions, making them challenging to sustain. Additionally, medical professionals and psychiatric experts began to question Kirkbride’s ideas about the treatability of mental disorders. According to Murphy, a total of 73 known Kirkbride plan asylums were constructed in the United States of America between 1845 and 1910 (Murphy, 2016: 37); thirty-three are designated on the National Register and seven are listed as National Historic Landmarks (ibid.: 46).

### Pavilion and cottage plans

During the rise of Kirkbride asylums, another innovative institutional building, Johns Hopkins Hospital (completed in 1889), designed by Edward C. Cabot and Francis W. Chandler, was being constructed in Baltimore (Hayward, Shivers Jr., 2004). Although both types of facilities had similarities in terms of the care provided to medical and mental patients, Johns Hopkins Hospital differed in its building design and circulation system, adopting a layout based on pavilions. The pavilions of at Johns Hopkins were arranged in a **compound circulation system** based on one main axis and five parallel rows, rather than a **segmented linear circulation system of Kirkbride asylums**. The five parallel pavilions were designed to allow ample air circulation, with open wards holding 35 beds each, connected by covered walkways were located on the ground level. It is worth noting that the term “ward” is used both in medical hospitals and psychiatric hospitals, but refers to different types of space in each context. In medical-style hospitals, like Johns Hopkins, a ward refers to one large open room with exposed beds. In psychiatric-style hospitals, a ward refers to a corridor which acts as a shared public space with bedrooms on either side, as well as a dining room, dayroom, and attendant’s room.

Florence Nightingale, who published *Notes on Hospitals* in 1859, was responsible for establishing the importance of naturally ventilated pavilion wards using cross-ventilation. She advised designers to: “let the plan be simple and have as few closed angles and corners as possible” (Nightingale, 1859: 107). In Nightingale’s system, the main area of a medical ward needed to be a long and narrow room with beds placed on opposite walls, leaving enough space for nurses to tend to patients. Johns Hopkins hospital adopted this concept, placing patients’ beds together in a single large ward, making it fundamentally different from the Kirkbride model. However, this approach proved unsuitable. Mental and medical patients have different daily habits and therefore require different types of care and environments. After the first few experiments, this design ceased to be used in mental health institutions.

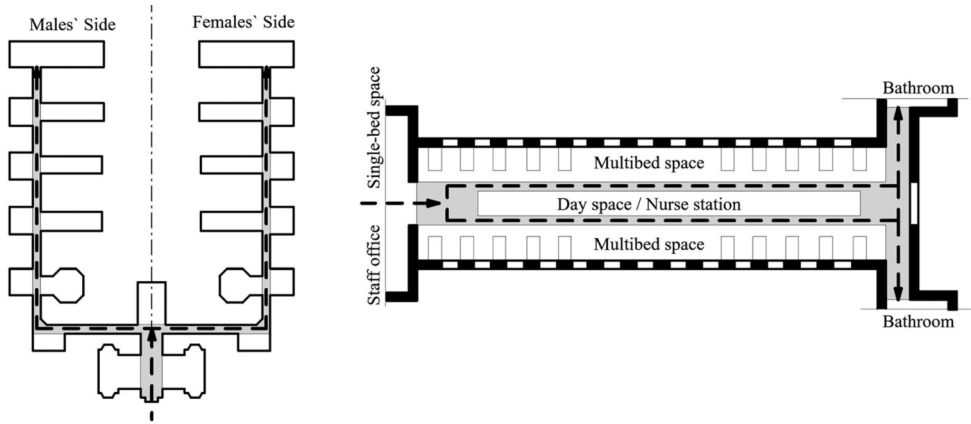


Fig. 5. Circulation systems scheme of a) Johns Hopkins Hospital in Baltimore, designed by Edward C. Cabot and Francis W. Chandler b) Nightingale ward in St. Thomas Hospital, London, designed by Henry Currey

As the segregated system gained prominence, another model, known as the cottage plan, was found to be more appropriate for people with mental or cognitive impairment, as the segregated system gained prominence, and state officials recommended a new set of buildings based on it. The cottage model involved replacing the single-building concept with multiple houses for resident patients. Despite limiting the possibilities for surveillance, the design gained popularity, leading to the downfall of the Kirkbride linear model, which emphasized centralized hospitalization and hierarchical control. The cottage plan allowed greater flexibility in architecture and patient placement, and it continues to be favored by psychiatrists today.

## Deinstitutionalization

In the 1970s, experts and researchers began to draw attention to the negative impacts of institutional character of healthcare and social care buildings. In North America and Europe, people with developmental disabilities and mental health conditions were often incarcerated in large residential institutions (Rothman, 2002; Wolfensberger, 1975). According to Steinfeld and Maisel (2012: 176) institutional buildings “were constructed with circulation system and protected perimeters to control access by the public and prevent ‘escape’ by residents. Such facilities needed large parcels, they were isolated from the surrounding communities by distance and physical barriers.” Initiatives to transform these institutions into a people-friendly community form were started as a process of deinstitutionalization. Rollová and Čerešňová (2015: 4) describe this deinstitutionalization in terms of moving people with disabilities out of traditional facilities, where they are physically and mentally isolated from ordinary life, and into to community-based care where together they create the conditions for

a life that corresponds to that in mainstream society, and where they can enjoy conditions of equal citizenship.

The policy of deinstitutionalization was implemented through various programs around the world, such as a dedicated village in Geel in Belgium or Bemis's agricultural colony project in Worcester, USA (Yanni, 2007: 89), and others. Under these reforms, treatment in public hospitals is only advised for the most severe cases. The objective is to treat more patients, discharge them to their homes or communities, and provide outpatient treatment. Geel is a notable example of a community centre and is a small, peaceful town of human scale, renowned for its early adoption of the concept of deinstitutionalization in psychiatric care. The Geel system had the advantage of enabling people with psychiatric illness to live within a community while receiving appropriate care and supervision.

The concept of deinstitutionalization led to the development in the 1970s of community residences, which aimed to reduce social isolation while also cutting costs. Under this system, "each residence houses 6 to 12 people in a family-style arrangement, with support staff and residential furniture arrangements" (Steinfeld, Maisel, 2012: 176). At the beginning of this transformation process, these communities were reserved primarily for people with chronic mental disorders or those unable to join the community. "Research on the benefits of community residences has demonstrated the great positive impact of this strategy for the residents, including improvements in independent functioning and social behavior" (Vegso, 1992). However, there were debates regarding whether this policy merely shifted people from one institutional setting to another. The use of psychoactive medications played significant role in deinstitutionalization. Medications started to be administered in various settings, including at home, but the issue is more complex than the assertion that psychotropic drugs have replaced asylums of the nineteenth century.

The greatest achievement of deinstitutionalization was the decrease in the use of public psychiatric hospitals for people diagnosed with chronic mental illness. It is also important to realize that deinstitutionalization is not the ultimate solution in the context of care for people with cognitive disorders. Many people, due to the high level of dependency, need constant professional supervision. Contemporary psychiatrists suggest that, for example, people with schizophrenia who respond well to medication may not need to relocate from their family homes. However, people with dementia typically require continuous care. People with dementia are sensitive to their environment, so creating a home-like environment built on an intuitive circulation system can reduce confusion and disorientation. Instead of gigantic hospitals, care facilities for people with dementia should be designed with smaller, interconnected units.

## Conclusion

Cognitive and mental disorder is a complex phenomena with both medical and social dimensions. The architectural model of Bethlem Hospital, perhaps the most



*Fig. 6. Visualization of the atrium of the health and social care facility, designed by Zuzana Čerešňová and Michal Kacej*

famous historical institution for people with mental and cognitive disabilities in the Western world, influenced the design of later asylums. Bethlem's straight linear circulation system and symmetrical architectural composition played a significant role in shaping the institutional model for mental healthcare facilities. During the era when Kirkbride asylums were on the rise, another groundbreaking institutional building, Johns Hopkins Hospital in Baltimore, was taking shape. It differed significantly from Kirkbride asylums in its architectural design and circulation system. While both types of facilities provided care to medical and mental patients, Johns Hopkins Hospital employed a compound circulation system with one main axis, similar to the layout of Bethlem Hospital, but with five parallel rows, in contrast to the segmented linear circulation system of Kirkbride asylums. This design allowed for ample air circulation and featured open wards connected by covered walkways on the ground level, as well as a semi-private atrium.

Over time, the Cottage Plan gained prominence in mental healthcare, emphasizing separate buildings and houses over centralized hospitalization and hierarchical control. This shift in architectural design allowed for greater flexibility in patient placement and continues to be favored by psychiatrists today, marking the transition away from the Kirkbride linear plan.

Task from Ministry of Labor, Social Affairs, and Family of the Slovak Republic involves building a new type of facility called "health and social care facility". These facilities, currently in the early stages of construction in Slovakia, have a maximum capacity of 30 individuals with a high level of dependency. They are larger structures that incorporate various operational units such as a doctor's office, laundry facilities, and food services. The main goal was to carefully select and design the circulation

system and spatial composition of the facility in a manner that creates a family-like atmosphere and aligns with the intended scale and overall architectural concept. The result is a symmetrical, accessible, single-story structure resembling the circulation system of Johns Hopkins Hospital, based on “living cells” comprising several bedrooms and bathrooms. Four living cells are connected to form wings. Two identical wings create an atrium, a common semi-private outdoor space. Both residential wings connect directly to the main entrance and are based on a linear circulation system, which is the most suitable in terms of cognitive accessibility and wayfinding.

Common spaces such as the living room, kitchen, and dining room are located between the living cells. Thanks to the installation of common spaces directly on the axis of the circulation system, the institutional character of the facility is minimized, and a pleasant, well-lit common space is created. This concept responds to Thomas Story Kirkbride’s manifesto by minimizing dark areas in corridors and connections of wings, and adopts the John Hopkins Hospital circulation system on a smaller scale and spatial composition. These design features are optimal for creating a humanized environment for health and social services in the twenty-first century. The proposed design is available to interested parties who wish to operate such facilities in Slovakia, with the assistance of non-repayable financial contributions from the Slovakia’s Recovery and Resilience Plan. “We are now moving towards a new stage in many societies: the architecture of social participation, with the goal of equality in opportunity through universal design” (Steinfeld, Maisel, 2012: 21).

## REFERENCES

- Cangár, M. (2018). *Prechod z inštitucionálnej na komunitnú starostlivosť v Slovenskej republike* (2. edition). Bratislava: SOCIA – Nadácia na podporu sociálnych zmien.
- Cantaş, A., Can, A. (2022). Justification of panopticon in superhero movies: The Batman Movie. *Journal of Design for Resilience in Architecture & Planning, Volume 3, Special Issue*.
- Dewey, R. S. (2012). *Recollections of Richard Dewey, Pioneer in American Psychiatry: An Unfinished Autobiography*. Literary Licensing, LLC.
- Hayward, M. E., Shivers Jr., F. R. (2004). *The Architecture of Baltimore: An Illustrated History*. Baltimore: Johns Hopkins University Press.
- Higgins, R. L. (2019, 01 13). *Buffalo Toronto Public Media*. Retrieved from A Brief History of Mental Health Care in New York: <https://www.wned.org/television/wned-productions/wned-history-productions/reimagining-a-buffalo-landmark/history-of-mental-health-care/>
- Kirkbride, T. S. (1880). *On the Construction, Organization and General Arrangements of Hospitals for the Insane, with some Remarks on Insanity and its Treatment* (Second edition with revisions, additions and new illustrations, ed.). London: J. B. Lippincott & Co.
- Lipuma, D. (2015). *Mat Response to Deinstitutionalization*. Architecture Thesis Prep. 297.
- Mindham, R. (2021, April). Robert Hooke’s Bethlem Hospital of 1676: an architectural wonder. *The British Journal of Psychiatry, 218*(4), 181. doi:<https://doi.org/10.1192/bjp.2020.227>
- Murphy, M. M. (2016). *Preserving the Kirkbride Legacy: An Analysis of the Extant State of the Plan and Challenges of Adaptive Reuse*. Greensboro.
- Nightingale, F. (1859). *Notes on Hospitals*. London: John W. Parker and son.

- Orser, Ch. E., Piddock, S. (2007). The British Lunatic Asylum: Ideals and Realities. In: S. Piddock, *A Space of Their Own: The Archaeology of Nineteenth Century Lunatic Asylums in Britain, South Australia and Tasmania. Contributions To Global Historical Archaeology* (pp. 336–351). New York: Springer.
- Pérez-Fernández, F., López-Muñoz, F. (2019). The Kirkbride buildings in contemporary culture (1850–2015): from ‘moral management’ to horror films. *History of Psychiatry*, 30(3), 336–351. doi:<https://doi.org/10.1177/0957154X19839912>
- Reid, R. (1809). *Observations on the Structure of Hospitals for the Treatment*. London: James Ballantyne & Co.
- Rollová, L., Čerešňová, Z. (2015). *Univerzálné navrhovanie objektov komunitných sociálnych služieb*. Bratislava: Implementačná agentúra Ministerstva práce, sociálnych vecí a rodiny Slovenskej republiky.
- Rothman, D. J. (2002). *The Discovery of the Asylum: Social Order and Disorder in the New Republic (New Lines in Criminology Series) 2<sup>nd</sup> Edition*. Routledge.
- Stark, W. (1810). *Remarks on the Construction of Public Hospitals for the Cure of Mental Derangement*. Glasgow: James Hedderwick and Co.
- Steinfeld, E., Maisel, J. (2012). *Universal Design: Creating Inclusive Environments*. Hoboken, New Jersey: John Wiley & Sons, Inc.
- Stevenson, C. (2001). *Medicine and Magnificence: British Hospital and Asylum Architecture, 1660–1815*. Paul Mellon Centre.
- US Public Law 88-164 / 77 STAT.* (1963).
- Vegso, S. (1992). *Resisting Normalization: A Multi-Perspective Analysis of Four Groups Homes for Developmentally Disabled People*. Buffalo, NY: State University at Buffalo.
- Wolfensberger, W. (1975). The Origin and Nature of Our Institutional Models. In: R. B. Kugel (Ed.), *Changing Patterns in Residential Services for the Mentally Retarded* (pp. 59–172). Syracuse: Human Policy Press.
- Yanni, C. (2007). *The Architecture of Madness: Insane Asylums in the United States*. University of Minnesota Press.

## ABOUT THE AUTHORS

MICHAL KACEJ (ORCID: 0009-0003-4027-0304) – is an architect, teacher, researcher and external doctoral student at the Institute of Public Buildings, Faculty of Architecture and Design, Slovak University of Technology. His research interests include cognitive accessibility of the built environment, wayfinding and multisensory aspects of architecture. He is involved in international and national projects, such as Project DI (Deinstitutionalization of Social Care Facilities of the Slovak Republic) where he works as a facility evaluator and consultant for the transformation of large-capacity social service facilities. He is also a researcher in Project PUN – Support for Universal Design – exploring tools and methods for putting universal design of the built environment into practice. He is member of CEDA – Centre of Design for All.

ZUZANA ČEREŠŇOVÁ (ORCID: 0000-0002-9625-4501) – is an architect, Associate Professor and Vice-Dean for Research at the Faculty of Architecture and Design, Slovak University of Technology in Bratislava. Her research is focused on designing inclusive environment and age-friendly environment. She is responsible for the course



on Universal Design. She is a manager, consultant, evaluator and lecturer on the national Deinstitutionalization of Social Care Facilities project, and a researcher on various projects focused on human-centred design methods. In the academic year 2015–2016, she was awarded the Fulbright Grant for a research stay at the Institute for Human Centered Design in Boston. She is one of the founding members of CEDA (Centre of Design for All) and a board member of EIDD (Design for All Europe). She is national expert in the European Accessibility Resource Centre, Accessible EU.