THE PARADOX OF ACCESS: THE 21ST CENTURY MUSEUM CONFRONTED BY ITS SECURITY

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Access is a key element for an architectural work. In museums, access takes on special significance due to the connection between two very different worlds, and it is therefore associated with an 'access ritual', in which three parts can be considered for study: preliminary, liminal, and postliminary. Recently, the enforcement of security elements has been implemented differently and in distinct parts of the entrance, which, in many cases, breaks the flow of passage. To analyse this situation, we have examined the seven most visited museums in the world and two emblematic cases in France, where the 'ritual of passage' is contrasted with security elements, in order to reflect on how to link security elements to museum access.

Key words: **museum entry, threshold, security elements, most visited museums, access ritual.**

WHAT DOES IT MEAN TO ENTER A MUSEUM?

In the museum world, accessibility has become a key concept in the 21st century, because museums are institutions for the people. Promoting the notion of access underlines the fact that the museum is for everyone – without exception. This principle is an old one; it can be found in the first Unesco (1960) recommendation to make museums accessible to all. At first, accessibility was thought of in terms of disability, in particular, to allow people with reduced mobility or the visually impaired to enjoy exhibitions (ICOM, 1991). However, at the end of the 1990s, the notion of accessibility took on a greater scope, conditioned by a logic of social inclusion (Sandell, 2002; Black, 2012). It is in this broader perspective – the museum is open to all communities, inclusive and social – that the museum is defined today, which was reflected in debate at the International Council of Museums (ICOM) around the definition of the museum in 2019 (Sandahl, 2019). Most world-famous museums, however, were built at a time (mostly in the nineteenth century) when the notion of accessibility was completely different, and the museum was aimed at a much more limited section of the population (Hudson, 1975).

One of the major purposes of the museum entrance, from this perspective, is to communicate accessibility, by showing how easy it is to cross its threshold. This is particularly true for the Centre Pompidou, which is a significant marker of the transformation of museum architecture. Designed in the early 1970s, it seeks to show the continuity between public space and the museum (Davis, 1990). Older museums, conditioned by their architecture, have nonetheless sought to show their openness to all audiences, ensuring the best possible access for all. Despite this unifying discourse, it seems to us that a particularly important detail has been omitted from the debate on accessibility: that of security. Recent measures in this area, linked in particular to terrorism, have led to many important changes in the idea of the entrance that we think are worth examining.

Before reviewing a number of the most famous museums and analysing their entrances, we would first like to focus on the notion of access in architecture. Access is first considered, from a general point of view, as an entry. It is a key element since it implies an introduction or start, a point of arrival and departure, generally, the connection with the outside world, the opening of its limits to be crossed. Access indicates from where one enters, the starting point, where one moves from the outside world to the inside one. Although access is a static element, it has been associated with different actions: enter, exit, cross, go through, pass, move through, transit, transform, change, transport, impress, discover, arrive, among others. Access can be defined as the point that is both interiority and exteriority (Blanchot, 1992), since it

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connects or separates both worlds (Gallardo, 2011).

If, in general, access to an architectural work is of great relevance, this quality is increased in museums. Entering a museum can be compared to entering another atmosphere (Dorrian, 2014), another space or time, making reference to arriving at a place, linked to the idea of going on a trip and crossing a threshold, because they transport our emotions. Therefore, it is a physical, mental, and sensory crossing (Renault, 2000).

This architectural logic is ancient. The first examples of the materialization of this act of entering are found in the Egyptian temples, where their monumental entrance stood out. The temples were oriented to the east, to see the rising sun from the inside, and the door represented the 'entrance to heaven' (Norberg-Schulz, 2001). Greek temples were surrounded with columns, which prepared access to the interior, and at the same time constituted a kind of forest to be related to the exterior. In Roman architecture, access to the temples is marked by a porch that rises much higher than the Greek temples, on a podium, which is accessed by a staircase. It is not by chance that, in the 19th century, museum architecture adopted temple entry codes in a large number of buildings: the Altes Museum in Berlin, the British Museum or the Tate Gallery in London, the Museum of Fine Arts in Budapest, and others. Another type of cathedral-based museum architecture is also worth mentioning, such as the Rijksmuseum in Amsterdam or the British Natural History Museum in London. The idea of an access portico continues to this day, despite the fact that the image of the museum as a temple has been criticized (Rivière, 2009), along with the idea of ascent, of putting art on a pedestal, on an elevated floor plan, related to the ritual of ascension. Thus, the Museum-temple is understood as the sacralization of culture, generally linked to the peristyle that gives it its "solemn majesty" (Renault, 2000, p. 15).

Beyond the current discourse on accessibility, some museums continue to enjoy a status reminiscent of that of the temple or the cathedral (Poulot, 2009). They constitute a very particular space, practically sacred, outside the secular world and everyday gestures, where the object preserved for future generations testifies to the knowledge of humanity (Mairesse, 2014). The symbolic function of the museum entrance, from this perspective, is to fundamentally differentiate one world from another. Developments in museology have put such symbolism of separation into perspective, in the search for a museum that is accessible to all.

Thus, when taking into account all the factors involved in entering a museum, i.e., it is associated with a change, sequence or transition between two worlds (Van Gennep, 2008), you can link the act of accessing a museum with a kind of 'ritual of passage', as defined by Walter Benjamin (2005), a kind of ceremony of crossing from one world to another on a journey that involves the symbolic and sensory transport of emotions.

ANALYSIS OF THE RITUAL OF ACCESS TO A MUSEUM

Contrary to the notion of accessibility, a contemporary leitmotiv, access to the museum can also be seen as the crossing of a passage, a ritual involving a certain effort. "If

there is a rite of passage, it is because there is separation, crossing a limit (...) and it implies duality, the ambivalence separation/passage that must be taken as an object, because it reveals fragility, uncertainty" (Bonnin, 2000, p. 68).

To analyze the access ritual, the scheme of "the rites of passage" defined by Aronld van Gennep is followed, which proposes three parts: "preliminary rites to the rites of separation from the previous world, liminal rites to the rites performed during the margin study and postliminary rites to the rites of addition to the new world" (Van Gennep, 2008, p. 25). To extrapolate these parts to the ritual of access to a museum, the consideration of three phases is proposed: preliminary, liminal and postliminary.

Preliminary access

Preliminary access contemplates the museum's relationship with its surroundings, its public space. Thus, in the first approach to a museum, its legibility must be considered, namely that it is easily identifiable (Lynch, 2006) hopefully from afar, given that museums are sometimes authentic landmarks. There are different elements that contribute to making a museum visible, among which the following can be highlighted: the building itself, where its volume, facade and entrance account for this architectural type; canopies or elements that highlight the access and invite the visitor to enter; and signs or banners indicating the name of the museum.

Accesses can be classified according to their: a) location: front, side, rear; being able to be in the same plane of the facade, which is protruding or set back; b) level: the same as the sidewalk, higher (reminiscent of the ascension process), or lower (that make us enter the land); c) type of surface: flat, ramp, stair, elevator; d) delimitation: canopy, portico, void, gap, protruding volume, recessed volume.

Liminal access

In relation to the main door, it is remembered that *Iannua* is the first entrance door whose name derives from the god Jano (Seville, 2004), which is symbolic of the beginning of everything that will happen later, therefore, the main door inaugurates the access (Espinosa, 2012). Yet how should one open the door to a sanctuary, to a revered, important place? Inwardly or outwardly? Quetglas (2004) wonders and concludes that it should open both ways simultaneously, to correctly relate both worlds and identify a ritual entrance.

Access is directly linked to threshold: "more than a watertight limit or border, this is a threshold or – a word from Borges about a preface – a 'vestibule' which offers everyone the possibility of entering or turning back" (Genette, 1987, p. 8).

It is necessary to distinguish the threshold from the border, since the threshold is an area, a 'between', a space in the middle; and the shape of the threshold, as a temporal and spatial figure, is that of 'between two', a middle that opens between two things or two people (Teyssot, 2003). A threshold opens the possibility of the connection between the inside-outside or intra-extra (Rancière, 2005), of a sway, relating to concepts such as: limit, border, skin, portico, door, permeability, porosity, thickness, tension between two situations, movement (visitor) – stillness (threshold).

Thus, to cross the threshold means to aggregate to a new world. So, this is an important act (Van Gennep, 2008). The function of the threshold can be synthesized to three degrees assimilated to three roles (Von Meiss, 2007): the utilitarian role, which refers to going through the door; the protective role, due to the control that it implies; and the semantic role, namely, everything that crosses the threshold, which would have a special significance in the case of museums. Monique Renault (2000) affirms that it is with the definition of a threshold that the tensions between the two worlds of urban space and the art museum crystallize. Thus, the threshold prepares for a 'decontextualization' when leaving everyday life and entering another temporality. Although there are different classifications of museums, such as 'temple museum' or 'palace museum', among others, which are linked to different types of thresholds, there are also examples such as the current Municipal Museum of Contemporary Art (S.M.A.K.), where an attempt was made to suppress the threshold. It could be said that, even with this work of 'suppressing' the threshold, one finally has to cross a door, a minimum threshold to access the interior.

To analyse a threshold, it is recommended to review its three dimensions: width, height and depth (Espinoza, 2012). Although the height at the first entrance door marks the access to an emblematic building, it generally adjusts to the visitor. The emphasis on the solitary experience of access is also evident in the width of the doors, and finally, in the depth of the threshold, to check if there is a desire to extend the experience of entry. It must be remembered that in the etymology of the threshold the ideas of light and limits are closely linked, the "threshold is the edge of light" (Gausa *et al.,* 2001, p. 599).

For Alison and Peter Smithson, the threshold (or 'doorstep' as presented at the IX CIAM) was a new attitude to thinking in terms of the associations of human beings at all scales, as well as articulating and producing transitions between interior and exterior spaces, public and private. Moreover, for Aldo van Eyck (1966) it was a totalizing concept which he vindicated as an idea capable of becoming the symbol of the architecture itself (De Molina, 2020), encompassing its meaning "until it covers every relationship between man and man, between man and things" (Gil, 2016, p. 46).

Thus, although the "threshold fuses the spaces" (Bonnin, 2000, p. 69), recently museums, like other architectural types, have been threatened by different events and have had to incorporate security mechanisms at this important point of interior-exterior connection, which in most cases, disrupt the 'access ritual' by slowing down entry and making it more uncomfortable through the routine search of our belongings and our bodies. This raises an important question: is the 'access ceremony or ritual' compatible with the security elements required by museums today? How have the most visited museums in the world incorporated security devices? To begin to reflect on these issues, it is necessary to review the security requirements that are installed in the access areas of current museums.

Security features at the museum entrance

This old (psychological) rite of passage has been joined in recent years by a new security-related rite! The world is changing, and we must bear in mind the different threats and dangers to which museums are exposed such as: theft, terrorism (Atkinson *et al.,* 2020) and recently Covid 19.

> "The way in which we have so far protected our cultural heritage, with a priority approach to protection, is no longer enough. Today, there are numerous risks that threaten our heritage. As a consequence, we are forced to increase security measures in a more sophisticated way than we would like – this is where the dilemma lies" (Hekman, 2019, p. 6).

Thus, fluid communication among all art professionals and the continuous revision of security measures are essential steps that must be taken. "Security is achieved through the application of adequate measures, both surveillance (guarding an object or a person) and protection (reducing danger, impact, threat, or damage); these measures are interrelated and mutually reinforce one another" (Hekman, 2019, p. 7).

The goal of museum security is to meet the needs of people and collections (Navas, 2018). It is thus key to consider the importance of all the people who constitute a museum. In the case of visitors, security cannot be an obstacle to public visits to museums; however, understanding how the mechanisms, devices, or security checks 'hinder' or prevent the flow of visitors' itinerary by having to 'be checked' at the access can be analysed.

These access control devices for people can be classified from lowest to highest security levels, starting with 7 levels, which, in most cases, are cumulative:

- No type of control. Free access without checking bags, without security personnel, or control elements. Although there will always be at least one person located at the entrance observing visitors;
- Camera system. A system that exists in the vast majority of accesses to museums configured by control cameras. Video technology makes it possible to capture and report criminal events and record their course. More sophisticated technologies make it possible to detect and identify perpetrators. It is necessary to ensure that the provisions of data protection, employee rights, and the like are not violated. The regulations of each country must be kept in mind;
- Inspection system for bags. There are security personnel who carry out a visual inspection of the inside of bags.
- Inspection systems for bags and coats. Visual inspection by security officers;
- Portable hand detectors. They are lightweight, hand-held instruments designed to detect predetermined metals. They are used in various places to detect metal objects in articles that people can carry, such as bags or even pockets of various clothing items;
- Metal detection arches. They can be fixed or portable and allow for adjustments to the parameters to detect different types of metals; and
- Scanners for objects, bags, and the like. These devices are mainly found in airports. It is required that personal items are passed through the scanner, in addition to the six control points above, to be thoroughly inspected. At this level of control, it could be necessary to add

other types of verification, in particular the taking of temperature (for Covid), currently underway in China.

After passing through the security devices, which are usually situated in the liminal or middle access, the final part of this rite of access is reached, the postliminary access.

Postliminary access

Alvar Aalto (2000) explains that there are many possibilities for achieving the transition between the interior and the exterior and indicates that the location of the lobby is key to having a close relationship and getting a clear idea of the other areas or dependencies. From the exterior to the interior, from the entrance, the passage through the threshold to the hall, there is a sequence, a succession of architectural episodes determined by the proportions, materialities and lighting of the different areas. This route, a fundamental strategy for Aalto, culminates in the hall that establishes the first area of pause before continuing towards the interior (García *et al.,* 2014). Once having passed through the security systems, it is up to the visitor to join the lobby. This link with the reception services or welcome desk, properly speaking, is therefore also a space whose proportions, light or materiality should be analysed.

The short description of these three stages makes it easy to understand one thing: the 'ritual' of the visitor entering the museum, whether in a new building or in older architecture, has been profoundly influenced by these new security measures, which appeared mainly during the 1990s. Paradoxically, this was at the same time as museums were trying to make themselves more accessible to everyone.

ACCESS IN NINE MUSEUMS

To analyse this access ritual more precisely, we decided to study the seven most visited museums in the world (Hunter, 2018; BBC, 2019; Museums, 2019; List of most-visited museums, 2020), together with two emblematic French cases. Note that, although all the cases proposed are museums, not all were designed for this purpose, which will make it possible to review the operation of access for architectural types designed to shelter art in parallel to other architectural types that were adapted to shelter art.

Each case is presented with a brief description of the museum and its three access phases, and an image of the interior to show the lobby, as well as the associated security elements.

National Museum of China, Beijing

The National Museum of China (2020a) is located on 16 East Chang'an Avenue, on the eastern side of Tian'anmen Square. The renovation and expansion of this museum combine the old museum of Chinese History with the Museum of the Chinese Revolution. It has a constructed area of 192,000 m² and was inaugurated in 1959. This Museum is defined by its director as the ancient temple and memorial of Chinese culture, recognized as the highest chamber of historical, cultural, and artistic treasures where the excellent traditional, revolutionary, and advanced culture of China's socialism are concentrated (National Museum of China, 2020b).

In the preliminary part of its access, this museum is clearly identified from its surroundings, which emphasizes the 'temple' characteristic. The entry is very high with respect to the street level.

In the liminal access, the entrance is comprised of two double porticos, and each portico is composed of 12 square-based pillars. The museum has three entrances: South, East, and North. The high-rise portico stands out in its liminal access; its thickness makes it possible to extend this section of the access, and the glazed entrance doors adjust to the scale of the visitor.

From the threshold, the great hall is accessed through four revolving doors, two on the left and two on the right of the portico. Once one enters the lobby, where its great height, amplitude and rich natural lighting from the main facade stand out, one must go through the security check.

In the 'Rules of access to the museum' on the website, it is stated that 'all visitors must pass the security check' (National Museum of China, 2020c). As can be seen in the sketch (Figure 1), the access of each revolving door in turn connects with two interior security porticos. Each double security portico has an object scanner. Therefore, the safety of people and their personal objects is met at all levels.

Although the security elements are placed in direct relation to the architectural threshold and considering that the metal detector frames are placed parallel to the facade plan and in relation to the accesses, integration between access and security elements cannot be seen as these security elements 'float' in the interior space.
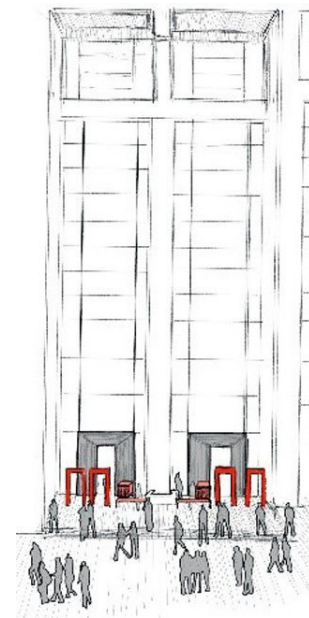

Figure 1. National Museum of China. Partial sketch of access from inside. (Source: Authors)

National Air and Space Museum, Washington. D.C.

The National Air and Space Museum (2020a) is located on 655 Jefferson Drive SW. The museum is a research centre on the history, science, and technology of aviation and space

flight as well as planetary science, terrestrial geology, and geophysics. The project corresponds to the Quinnevans architects, with an area of 131,394 m², and was inaugurated in 1946. The National Air and Space Museum (2020b) holds over 60,000 artefacts and has more than 20,000 cubic feet of aviation archival material and historical space artefacts in custody.

The entrance to this museum is set back in relation to the volumes of its sides, which account for, in this preliminary phase, the presence of this building in its environment. The access doors are glazed and are part of the curtain wall of the facade, which provides great luminosity to the spacious hall. It does not have a canopy, except for its southern access, which has a higher volume that functions as such. Access is elevated relative to street level and can be entered via a wide staircase or ramps.

There are two opposite accesses. The North entrance can be accessed from Jefferson Drive and the South can be accessed from Independence Avenue. Both have staircases and associated ramps. Each of the access points has four exterior doors. The southern access, on Independence Avenue, is located under a volume that protrudes from the facade, and the northern entrance can be accessed through the large glass wall located on Jefferson Drive.

In relation to security, the museum's webpage indicates that "we're committed to your safety and have security measures in place to keep you and our objects protected. When you arrive at the Museum you can expect a full security screening similar to what you might experience at the airport, except you can keep your shoes and belts on" (National Air and Space Museum, 2021). Although there is a liminal space between the exterior doors and the interior doors of the hall (Figure 2), which suits the proportions of its visitors, the security elements at the accesses are located inside the lobby. There is a relationship between the access doors located on two parallel planes and the security portals that face each other inside the museum. Each security portico has an associated scanner, so it has a maximum level of security.

Figure 2. National Air and Space Museum. Hall.
(Source: https://airandspace.si.edu/visit/museum-dc.)

As in the previous case, there is a spatial correspondence to the interior of the hall between the architectural access, the doors, and the security frames, which are parallel to the facade plan and adjacent to the doors. However, the security elements also float in the interior space, so it can be said that there is no integration between the museum and the security elements linked to its access.

Metropolitan Museum of Art, New York

This museum is located at 1000 Fifth Avenue. It is the largest art museum in the United States. Richard Morris, Hunt Calvert Vaux, and Jacob Wrey were its architects, and it was inaugurated in 1872, with an area of 186,000 m². When The Met was founded in 1870, it did not possess a single work of art. Due to the combined efforts of generations of curators, researchers, and collectors, its collection has grown to represent more than 5,000 years of art from around the world, from the first cities of the ancient world to contemporary works (Metropolitan Museum of Art, 2020a, 2020b).

The Met is perfectly legible from its surroundings, as this neoclassical palace of art stands out, along with its many associated posters and banners. Access is elevated above street level via Fifth Avenue, from a large, pyramid-shaped staircase which resembles Roman temples, with their preliminary rite of ascension. There are three access bays marked by two ionic columns, under a large semi-circular arch, where three double glass doors allow entry to the museum, which are adjusted to the scale of the visitors.

Security standards at this museum are extremely high, as indicated on the museum website: "The safety and security of The Met's visitors, staff, and collection are of utmost importance" (Metropolitan Museum of Art, 2021). As seen in the sketch (Figure 3), the people in charge of security check are in the lobby at tables, the proportions and lighting of this great hall stand out. Two checkpoints are generated, marked by cords on both sides of the access, and the central part is left as the museum exit. Therefore, spatial integration between access and associated security systems is not seen either.
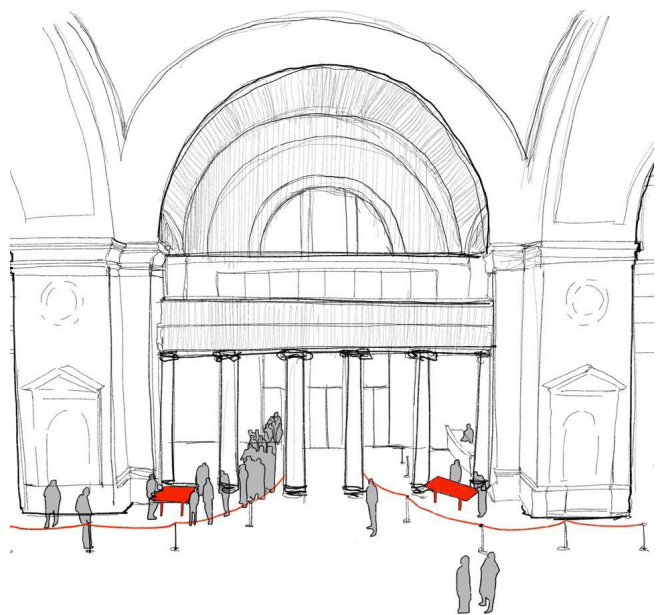

Figure 3. Metropolitan Museum of Art. Sketch of the hall.
(Source: Authors)

Vatican Museums, Vatican City

This museum is located on the Viale Vaticano. Different architects collaborated at different stages: 1: Bernardo Rossellino; 2: Domenico Fontana; 3: Alessandro Dori-Michelangelo Simonetti-Comporesi; 4: Raffaele Stern; 5: Luca Beltrami (Vatican Museums, 2020a). The Vatican Museums (2020b) are the galleries and the set of rooms of artistic value, which are owned by the Catholic Church. These are accessible to the public. This museum complex is made up of different thematic museum buildings, papal buildings, galleries, monuments, and also the Vatican Library.

Access is at street level, through a stone portico perforated in the wall. In this case, the presence of the museum is marked by its long lines of visitors.

On the website of the Vatican Museums (2021), visitors are warned of security checks with a metal detector as well as surveillance with an advanced alarm system and video cameras in all rooms.

In this museum, the liminal access is of reduced proportions in its three dimensions. Although the hall is tall, since it has a proportion of more than double that of approximately one person, it is not as tall as the other case studies, and it is successfully illuminated mostly artificially.

Regarding the access hall (Figure 4), there are four security porticos that float in space, with associated scanner tapes in front of the metal porticos. It complies, therefore, with all levels of security, but integration between the security elements and access to the building is not found.
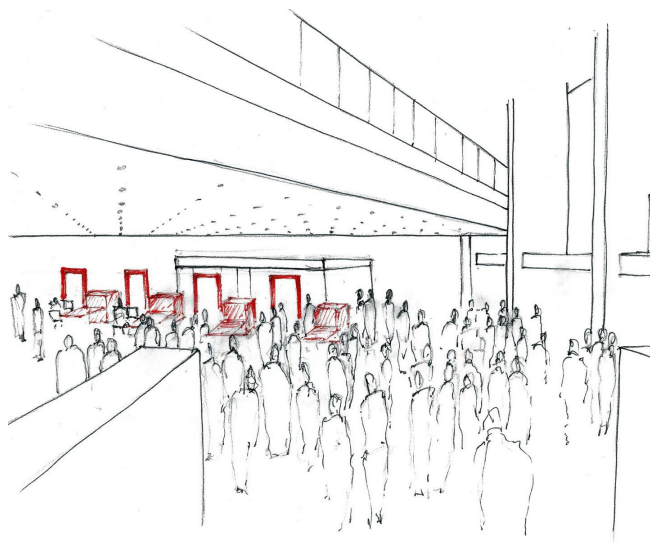

Figure 4. Vatican Museums. Sketch of the hall.
(Source: Authors)

National Museum of Natural History, Washington D.C.

This museum is located on 10th St. & Constitution Ave. NW. It is a natural history research and exhibition museum. It is the work of the architects Joseph Coerten Hornblower (1849-1908), and James Rush Marshall (1851-1927). It has an area of 140,000 m² and was inaugurated in 1910. As indicated on the museum's website: 'Our mission is to promote understanding of the natural world and our place in it. The museum's collections tell the history of the planet and are a record of human interaction with the environment and one another' (National Museum of Natural History, 2020a, 2020b).

The museum is elevated above street level. In the preliminary phase, the idea of a podium, a raised piece, is also observed from the public space. The main entrance is accessed by stairs located in the National Mall, and it can also be accessed by a ramp on Constitution Avenue (National Museum of Natural History, 2020c).

Regarding security, the museum indicates on its website (2020c) that they are committed to visitors through their complete security control, which is similar to that of an airport. It has the same security description as the National Air and Space Museum on account of the fact that both belong to Smithsonian museums, therefore they have similar rules. Within the 'museum security policy', it is stated that the safety of Smithsonian visitors, volunteers, staff, and collections is of utmost importance (National Museum of Natural History, 2021).

Of the three access points, the two sides are used to enter the museum while the central point is used as the exit. As can be seen in the image of the hall (Figure 5), at the entrances, security porticos are lined with a wooden frame and are placed parallel to the entrance doors in the lobby. Two parts stand out in the liminal access: the first is the portico to the main glazed doors of the hall, which adapt to the visitor; and the second is made up of a previous interior space adjoining the lobby where the security elements are installed, leaving the large hall free of devices. This is one of the few examples where you can see an intervention through the covering of the safety frames so that they can be integrated with the frames located at the entrances.
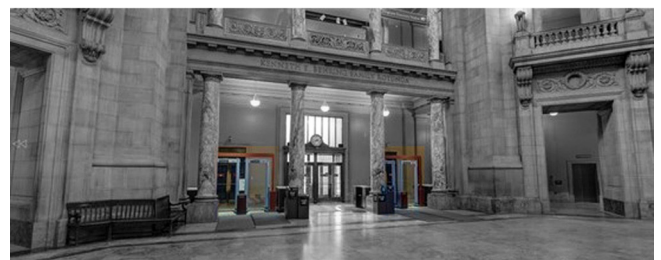

Figure 5. National Museum of Natural History. Access hall.
(Source: https://naturalhistory2.si.edu/vt3/NMNH/z_NMNH-016.html
tour virtual (Museum website))

British Museum, London

The British Museum (2020a) is located on Great Russell Street. This museum was intended to house antiquities, with a very important ethnological section. Robert Smirke was the architect in charge of the construction of the new headquarters of 135,000 m², which is still standing to this day. The inauguration had different phases: 1: First Mansion Montagu Building, 1759; 2: New Headquarters Construction, 1857; 3: Extension, 2000. The origins of the British Museum (2020b) lie in the will of the physician, naturalist, and collector, Sir Hans Sloane, who collected more than 71,000 objects that he wanted to be preserved intact after his death.

So, he bequeathed the whole collection to King George II. The gift was accepted and on June 7, 1753, an Act of Parliament established the British Museum.

This museum is perfectly legible from its surroundings due to the Ionic-style colonnade that makes up its facade, which is reminiscent of Greek temples, highlighting its eight-column portico that protrudes slightly from the building and marks the access, which is elevated above the sidewalk level, as seen in Figure 6. The main access is via Great Russell Street and the secondary access via Montange Pl. Both have ramps alongside the stairs.

Both accesses have 'security booths' (Figure 6). These white booths can be understood as elements attached to the museum, where the complete security process for access to the museum is carried out, allowing free entry into the building.

Although there is no direct link between the architectural elements of access and the security devices, this departure from security mechanisms can be understood as a prior review so that the visitor can freely enter. Thus, the passage ritual is interrupted in the preliminary phase, leaving the visitor to walk until they reach the main entrance and, after passing through the threshold, access the 'great court', which stands out because of its large dimensions and its glass and steel. However, the connection to the street or public space is mediated by the security booth.

Figure 6. British Museum. Main façade, Great Russell Street.
(Source: Google Earth)

Tate Modern, London

The Tate Modern Museum is located on Bankside. It was a reconversion and restoration of the former Bankside Power Station, originally designed by Sir Giles Gilbert Scott. Recently, the Gallery of Modern Art was remodelled by the architects Herzog and de Meuron, Associates: Sheppard Robson & Partners, Michael Casey. It has an area of approximately 35,000 m². Of the cases analysed, it is the most recently opened museum, since it was only inaugurated in 2000. It houses important contemporary works of art from around the world (Tate Modern, 2020a, 2020b).

From the outside, the volume of this building is legible, which forms a landmark for the city. The main entrance is located on the west facade of the building and can be accessed by a ramp that leads and invites the visitor to enter Turbine Hall, which is located below the water level of the Thames. There is also a secondary entrance on the north facade, which prolongs pedestrian access from the Millennium Bridge to the interior of the building. Turbine Hall is conceived as a street that runs through the museum from west to east for its entire length and height (Pinar, 2019). Only one platform remains from the old floor level of the room, which crosses the building from north to south and allows access from the entrance of the north facade, at street level and therefore elevated with respect to the main entrance (Tate Modern, 2020b). The web page tells of the importance of the hall, as an extension of its access: "Turbine Hall has a vast and dramatic entrance area with ramped access as well as display space for large-scale sculptural projects and site-specific installation art" (Tate Modern, 2021a).

Regarding security, the museum page indicates that: "Tate takes security very seriously. We undertake a range of measures including random bag checks and plain-clothed security officers to protect our visitors, staff, collections, and properties. We do not discuss the details of our security arrangements" (Tate Modern, 2021b).

The security elements (Figure 7) consist of tables located at the liminal access, where security personnel check the belongings of visitors. Thus, although there is no integration of the security elements, they produce minimal interference.

To conclude this tour in the review of museum access, two emblematic examples from France will be reviewed below: *Musée du Louvre* since it is the most visited museum in the world; and Centre Pompidou because it is the museum that opened museology to the outside, making a link with public space.
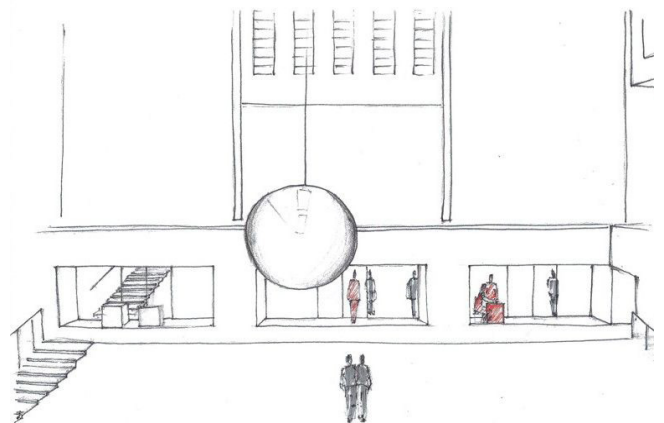

Figure 7. Tate Modern. Sketch of the hall.
(Source: Authors)

Musée du Louvre, Paris

The *Musée du* Louvre is located on Rue de Rivoli. The architects were Pierre Lescot during the first stage and Ieoh Ming Pei during the second stage. The first stage was inaugurated in 1793, and the second in 1989, when the central glass pyramid that corresponds to the main entrance was introduced. The world's largest and most-

visited museum, drawing nearly 10 million people each year, is described on its website: "Originally a simple defensive fortress, the Louvre was for a long time one of the main residences of French kings. It became a museum in 1793, and now exhibits over 73,000 sq. m of artworks" (Musée du Louvre, 2020a, 2020b).

In the preliminary phase, this museum is clearly legible from its surroundings, both due to the ancient architecture and the incorporation of the glazed pyramid.

The main entrance to the Louvre museum is through an opening located on the west face of the pyramid. This access is located on street level and once there, one descends to the large hall by stairs, escalators, or by elevator.

Regarding security, the museum page indicates that: "all visitors must comply with security checks. The *Musée du Louvre* thanks its visitors in advance for their understanding and cooperation in this matter. Large suitcases and bags are prohibited. In the event of an incident, visitors must vacate the danger zone, alert our security staff, and follow their instructions" (Musée du Louvre, 2020c).

Figure 8 shows how the access lintel extends inwards with a continuous plane, below which the complete security system is located. There is an interesting relationship and integration between the architectural project and security devices where the liminal access merges with the postliminal.

Figure 8. Musée du Louvre. Main Access, Hall.
(Source: Authors)

Centre Pompidou, Paris

The Centre Pompidou is located at Place Georges-Pompidou. President Georges Pompidou had the idea of a multidisciplinary cultural centre, where a public reading library, exhibition and creation rooms, and a music centre converged, along with all the activities of a contemporary art centre (Viatte, 2007). The architects Renzo Piano and Richard Roger were in charge of this project. The building was opened in 1977 and has an area of 17,000 m^2 (Centre Pompidou, 2020a, 2020b).

The main entrance can be accessed through a slightly inclined plaza, which continues at the museum's access

level, giving it continuity with the exterior. The entrance is marked by a glass canopy, which invites you to enter the building through a glassed volume located below it.

The centre's visiting regulations state that security personnel may request visitors to open their bags or packages to do a visual check in order to access the Pompidou Centre or anywhere within the establishment. Any refusal to comply with this request will result in the visitor being denied access to the establishment or being asked to leave the facilities (Centre Pompidou, 2020c).

This is an emblematic case because the security system is located in a volume between the architectural accesses, that is, between the exterior doors and the interior doors, in the liminal access, remaining inside the skin, which constitutes a good option for integrating security systems since they free up the exterior and interior planes (Figure 9) of the facade.

Figure 9. Centre Pompidou, 2019. Control area and Facade plan of the interior hall.
(Source: Authors)

DISCUSSION

The nine museums presented are faced with a double problem, which is partially impossible to solve. On the one hand, museums receive several million visitors every year, that is, tens of thousands of visitors daily, and they must try to not make those visitors wait too long. Those responsible for access know that visitors are willing to wait a few minutes, but the waiting time is inversely proportional to the satisfaction of the overall visit experience (Falk *et al.,* 1992). The current trend of frequenting these large establishments, conditioned by the development of international tourism, has led to an increase in the flow of visitors. The Louvre, with Pei's renovation, was designed to accommodate approximately 4 million visitors, and it now receives more than double that number. Additionally, the risks of terrorist attacks have increased recently, prompting museums to make adjustments to inspect each visitor. Regardless of these efforts, it seems that these risks have not decreased (the implementation of these rules, for example, for the Louvre, dates back to the end of the 20th century, according to the Vigipirate plan), and they could even increase due to the discovery of new risks, especially related to the pandemic.

On the other hand, since the 1960s (Unesco, 1960) the will of museums has been to be truly accessible to all, which means they should not become impenetrable shelters, but instead do everything possible to facilitate access.

It is particularly interesting to note that none of the museums described here, from this perspective, have actually implemented a security system that has been integrated into the architecture. As we have seen, only a few establishments seem to have incorporated a certain aesthetic attempt to integrate security systems, but in a relatively subtle way. Two hypotheses can be presented as to why this is so: on the one hand, museums can hope that such measures are only temporary and, therefore, can be eliminated in a relatively short time, which would render any architectural installation obsolete; on the other hand, by presenting security systems as temporary, they can also try to show visitors that such measures are not inherent in the museum's activity and that they should disappear in the coming months or years. However, the Louvre's example seems to demonstrate that such systems will last over time.

From an architectural point of view, the current solution for security seems to be, at best, a kind of make-up device that tries to interrupt the entrance as little as possible and, at worst, a continuous nuisance to the building, in largely eliminating the efficiency of the architectural proposals linked to the access ritual.

CONCLUSIONS

Access to museums is a broad topic of constant research, since it must be borne in mind that the public is not singular but plural (Weil, 1997), and museums change depending on their visitors; therefore, who visits and who does not visit them must be reviewed. The key is that museums tend to be "access for all", keeping in mind both physical and intellectual access, whereby all visitors can freely access, regardless of their physical, sensory or intellectual abilities, opening up towards a functional diversity (Eardley *et al.,* 2016; Rappolt-Schlichtmann & Daley, 2013; Patston, 2007). If the notion of accessibility appears to be a key concept in the world of museums, the least we can say is that, from an architectural point of view, it is not at all reflected in the same way by the establishments we have sought to study. Overall, accessibility appears to be mainly a question of visitor flow management, but it is mainly conditioned by security management.

In the museums analysed, it is observed that, in the preliminary phase of access, all are perfectly legible from their environment with very different possibilities of access. Although all forms are accessible to all people since they have ramps, elevators, or escalators associated with access stairs, in half of the museums reviewed the entrances are at the same level of the street while the other half are elevated above it. The average number of accesses is 2.2, with the Tate Modern having the highest number of entrances with a total of 5, versus The Metropolitan, Vatican Museums, and Centre Pompidou that only have one access point. There are also different types of signage located at the entrance: letters on the threshold, pennons or banners, indicating the presence of a museum.

The symbolic notion of the entrance, expressed in architecture since antiquity through the figure of the temple, continues to influence the visitor in many museums: at the main entrance, four of the cases analysed have porticos that mark the presence of a 'temple': The National Museum of China, The Metropolitan Museum, National Museum of Natural History, and The British Museum. Three of the cases have perforations in the walls to access them: in the Louvre, a perforation is made in the lower part of the glass pyramid, in the Vatican Museums, the main entrance is accessed through a perforation in the wall, just as in the Tate Modern. In the case of the National Air and Space Museum, the entrance is set back with respect to a volume that protrudes above it and indicates access. The Centre Pompidou has a glass canopy that extends from the main facade to mark the entrance.

In the liminal access, the initial hypothesis that the doors and thresholds have a dimension, both in height and width, that adjusts to the visitor is verified, producing a change in scale that allows them to be wrapped, as shown by all the case studies. With regard to to the depth of the threshold, it exists in all cases but it is of variable length. In this intermediate access, another relevant finding emerges in relation to the etymology of the threshold related to light, since in all the cases reviewed the access doors are made of glass, a quality that makes it possible to highlight the importance of total transparency in the threshold of the museums to have absolute clarity in the exterior-interior link.

Regarding postliminary access, eight of the cases analysed have lobbies where there is a strong change in scale in their three dimensions, accessing a huge hall, which functions as a large square full of mainly natural light coming from the plane of the main facade.

The museums analysed reveal different mechanisms and forms of security; however, only five of them also underline the minimal integration between the architectural accesses and the security elements. A first attempt is found in the National Museum of Natural History, where the security porticos are lined with wood, before entering the hall. In the Tate Modern, inspection tables are located at the ends of the access, in the liminal access, which produce minimal interference. The British Museum of London has a very interesting solution at its two entrances, which consists of placing security booths before the architectural access to the museum, in preliminary access, in which all security checks are carried out, leaving the architectural threshold free of obstacles. Finally, there are two interesting cases of integration, that of the Louvre museum, where the access lintel becomes an interior canopy that manages to house all the security devices, and that of the Centre Pompidou, whose exterior canopy houses a space that is located in the skin, between the interior and the exterior, and also houses all the safety devices, leaving the exterior and interior free from obstruction.

Security controls always represent a physical as well as a symbolic interruption in the access management of a museum. In an ideal situation, the minimal recommendation would be that the security elements remain perfectly integrated in the threshold, barely perceptible aesthetically

and that they prevent our detention, unless someone carries unauthorized elements, to perform the access ritual without any type of obstacles. But they continue to form a kind of barrier to the visitor and oppose the logic of accessibility of the inclusive museum open to all.

Thus, one can speak of the paradox of access in contemporary museums since, on the one hand, the entry is a key piece – because it is what transports us to the connection between the outside and the inside, but on the other hand, by having to incorporate so many security elements and new control measures, the fluidity and the experience of the 'access ritual' are broken.

Therefore, different questions and future lines of research are opened from the two dimensions at stake that should become increasingly intertwined, the architectural dimension and the security dimension: how can architects plan bearing security elements in mind, in order to integrate them into museums? How can security elements be designed that adapt to architectural thresholds, making them 'invisible' but meeting the highest requirements? And above all, how can museum entrances suggest that they are accessible to all, physically, socially and symbolically?

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