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The 1755 Lisbon Earthquake: The Catastrophe and the Reconstruction

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The 1755 earthquake in Lisbon, which ruined part of the city, shook Portugal and was felt even in other regions of Europe. It has been considered one of the most violent and destructive earthquakes in the annals of earth sciences. In Portugal, the minister of King José I, the Marquis of Pombal, launched the first known seismological survey carried out in modern terms. Its purpose was to assess the extent of the damage across the country. The political management of the crisis by the Marquis of Pombal had a strong social and economic impact. The State faced the situation of public calamity with emergency policies and with administrative and urban planning. The reconstruction of the Portuguese capital, designed by architects and military engineers, followed innovative construction criteria under a reticular and uniform model in the modern downtown. The Lisbon earthquake raised several questions inside the philosophical debate of Enlightenment and represented a historical landmark in the change of the perception of natural accidents.

KEYWORDS: LISBON EARTHQUAKE; MARQUIS OF POMBAL; URBAN RECONSTRUCTION; ENLIGHTENMENT; HISTORY

Introduction

The historical analysis of the earthquake of 1 November 1755, one of the most destructive earthquakes recorded in the annals of the earth sciences, has focused on the vision of the event and the philosophical questioning that it provoked. Given the destruction it caused and the impact it had on one of Europe's richest capitals, it left a vast set of documents and iconographic elements that has been used since the beginning of the last century in the study of historical seismology (Noto 2008). The analysis of the historical sources shows that the Lisbon earthquake was a milestone in the field of the perception of nature's "anomalies" and it highlighted man's fragile position in the face of the disruptive effects of an enormous and unexpected cataclysm. Without

ignoring the question of the social and cultural perception of risk and catastrophe in the 18th century, our focus shifts to the political, urban and media fields.
We intend to analyse the procedures adopted by the government of the Marquis of Pombal in the protection of the people and will assess the measures taken to restore public order and rebuild the city of Lisbon. Faced with a widespread scenario of chaos and ruin, the enlightened despotism of D. José, supported by the ministerial action of the Marquis of Pombal, triggered emergency mechanisms, planned the reconstruction of the city of Lisbon, made a positive assessment of the work carried out and, against the superstitions and truths of common sense, imposed a secularized interpretation of the catastrophe. At the initiative of the Marquis of Pombal and his enlightened advisors, a pioneering and ambitious seismological survey was launched throughout the Portuguese territory, with the aim of assessing the causes of the earthquake, the changes in the landscape and the subsequent damage.
What stands out, in particular, is that the Portuguese capital benefited from a modern renewal plan dictated by the criteria of rationality and pragmatism, as shown by José-Augusto França in *Lisboa pombalina e o iluminismo* (Pombaline Lisbon and the Enlightenment, França 1987). Paradigmatic in the context of 18th century urbanism, the new city of Lisbon, with its orthogonal layout and its erudite aesthetics, was also thought out to serve as the stage and mirror of the empire, as suggested by the beautiful Praça do Comércio, which opens out on the Tagus estuary (Silva 2007, 104).
The focus on the abundance of publications and images circulating in Europe under the pretext of the earthquake of 1755 also allows us to see that the sharing of narratives, comments and reflections abetted the conflict of interpretations, disseminated the event in the media, and occasioned manipulations and opinion campaigns.

The magnitude of the disaster

According to eyewitness accounts, the great earthquake of 1755, which in some areas of the city of Lisbon would have reached the X and XI

intensity values of the MM (Modified Mercalli) scale, unfolded with varying intervals of return and intensity. The initial quake occurred around 9:40 a.m., levelled the city of Lisbon and caused significant damage in the province of the Algarve, in southern Portugal. It was felt in North Africa and, at great distances from its epicentre, caused oscillations in the soils, agitated the waters of lakes, rivers and ports, and altered the courses of springs. Low-intensity seismic waves also hit the Canary Islands and the Archipelagos of Madeira and the Azores (Quenet 2005, 306–7; Poirier 2005, 72–5).

In Lisbon, the earthquake of 1755 had several replicas. The first tremor was intense and protracted. The earth trembled "from six to seven minutes, in which time there were two known references of tremors," notes Moreira de Mendonça, author of the *História Universal dos Terramotos* (Mendonça 1758, 238). This, shortly after the first earthquake, two other tremors, of strong intensity and shorter duration, totally razed the fragile and heavily damaged buildings that still remained standing.

In the interval between the great earthquake and the second aftershock, a violent tsunami hit the lower part of Lisbon, totally submerging it. According to Moreira de Mendonça, after

> these impulses, the sea withdrew from the land, leaving the bottom of its waters never seen before visible along its shores, its waters forming very high swells, which shortly thereafter rushed upon all the maritime settlements with so much impetus that they seemed to want to submerge them and extend their limits. The sea made three major incursions against the land, in addition to other minor ones, destroying many buildings and sweeping away many people swallowed up in its waters (*ibid*., 114).

In the same description of the tsunami, the author refers to the numerous vessels that were engulfed in the waters. The overwhelming progression of the river and sea front understandably added to the panic of survivors.

The deafening echo of the rumbling of the ground was heard again in the early afternoon. The dead piled up in the streets or laid buried in the ruins of the buildings, the injured and mutilated crawled and those in flight wandered about, lost in their search for shelter and security. The city lay in ruins, in a dense and stifling mist of unbreathable

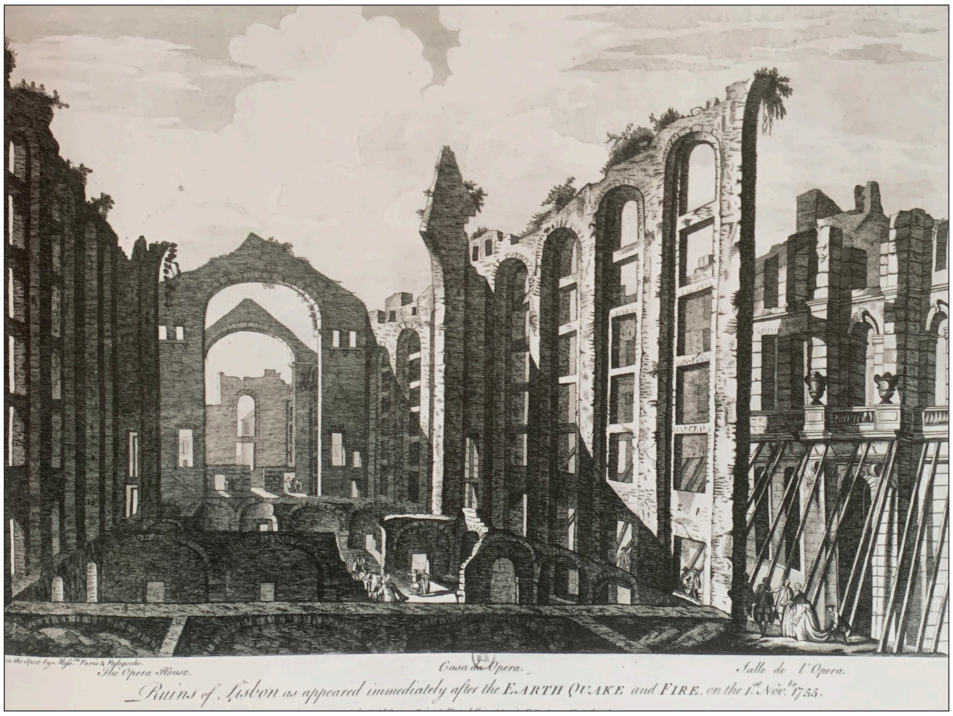

Fig. 1. Ruins of Lisbon Opera House. Le Bas engraving (1757). City Museum of Lisbon, J. Kosák Coll.: Historical Earthquakes.

dust and ash. Reports of that time show slight differences regarding the time, intensity, and orientation of telluric movements (Braga 2007, 42). According to some observers, the earth swallowed things and people vertically, and this impetus produced a rocking motion very similar to that of a vessel as it sinks (Carvalho 1987, 182).

At nightfall, a large column of smoke, resulting from the fires that broke out in the palace of the Marquis of Louriçal, in the church of S. Domingos, in the shelter of the Castle and other places near the Royal Palace and the Customs House, rose from the centre of the city. The fire progressed violently, and, during the following four days, it reduced rubble and corpses to ashes (Molesky 2019, 179–80).

A week later, the land continued to tremble, the movement of the tides was still altered, but the fires that raged in various parts of the city had already been extinguished. Six months later, Immanuel Kant, referring to the Lisbon earthquake, wrote: "The fire of the underground vaults has not yet calmed down" (Kant 2005, 107). After the first of Novem-

ber 1755, and for a little over six months, numerous small earth tremors continued to be felt in Lisbon.

The most populated neighbourhoods of the Portuguese capital suffered the greatest damage. According to Moreira de Mendonça, the earthquake left more than two-thirds of the city uninhabitable (1758, 136). The amount of losses suffered in the Portuguese capital alone was incalculable. Although the material damage resulting from the earthquake and tsunami has not been listed, it is known that the Royal Palace, in Paço de Ribeira, the recently inaugurated Opera House, and the Patriarchal Church, which had just been built, completely collapsed. The works of art and the majestic royal library of the Royal Palace, with about 70 000 volumes, disappeared in the blink of an eye, and the same happened to the riches accumulated in the warehouses of the House of India. At least twenty of the richest palaces of the kingdom's high nobility were destroyed, struck by flames and left in ruins. In the rubble of these imposing buildings, there lay buried, or reduced to ashes, rich collections of works of art, many libraries, tapestries, exquisite furniture, gold, silver and precious stones. The treasures accumulated in the royal court, in the palaces of the great families of nobles and in the rich residences of merchants practically disappeared (Molesky 2019, 191–5).

The churches, many of which were filled with people attending Mass at the time of the earthquake, were the last resting place in the lives of many of the faithful. Out of a set of 40 parishes, "sixteen collapsed or were burned, nineteen were reduced to ruins and the remaining five damaged" (França 1987, 67). Lisbon's religious installations suffered heavy losses. Out of sixty-five convents, only eleven remained standing (Mendonça 1758, 127–30). The city's six major hospitals, partially destroyed, were evacuated. And something similar happened with the Court gaols that suddenly were emptied.

This scenario of urban devastation let to estimates of a high number of victims. The city of Lisbon, with about 250,000 inhabitants, would have lost 10% of its population. One year after the disaster, the word on the street was that at least 18,000 people had perished in the disaster, as Father Antony of the Sacrament said. On the other hand, the Apostolic Nuncio informed Rome that the death toll was on the order of 40,000, and the Marquis of Pombal, to stop alarmism and silence the voices of doom, hastened to provide the colonial governors with a much lower

estimate. For the statesman, between six and eight thousand people would have perished in the fateful disaster (França 1987, 66).
The conflicting contemporary estimates compromised any rigorous attempt to ascertain the demographic losses caused by the earthquake on November 1, 1755, and in the subsequent months. In any case, and with great probability, the death toll from the disaster will have been high.
In the devastated neighbourhoods, the survivors abandoned the city and took shelter in tents in the suburbs. The hecatomb caused not only poor men, women and children to flee to the countryside, but ministers, clerics, nobles and the royal family itself as well, who had escaped the collapse of the royal palace because, on the day the earthquake occurred, they were at the Royal Country Houses in Belém. As a return to the Palace in Ribeira das Naus was impossible, the court was transferred to the Real Barraca da Ajuda, where it remained until 1794.

The Marquis of Pombal and the crisis cabinet

The normalization of the chaos was carried out thanks to the paternal protection of the monarch D. José, who immediately appointed a crisis control structure under the aegis of the future Marquis of Pombal.
Twenty-four hours after the disaster, this informal operational command structure began to act. This structure included: D. Pedro Henrique de Bragança, Duke of Lafões, administrator of the Justices of the Kingdom, with broad civil and criminal powers; D. Diogo de Noronha, Marquis of Marialva and chief equerry, who controlled and organized the affairs of a military nature; and the Marquis of Alegrete, who, in his capacity as President of the Senate of the City Hall, was in charge of the execution of decisions relating to the supply and cleaning of the city. From the outset, the City Hall and the army were called on to make available all material and human resources (Subtil 2007, 118).
The government, led by the Marquis of Pombal, asked the Cardinal Patriarch of Lisbon to monitor the burials of the dead, the lodging of the survivors of the destroyed convents and the provisional transfer of parishes, which were dealing with churches in ruins. The response to

the crisis was in line with a brief announcement that outlined three priorities: bury the dead, care for the living, and close the ports (Dynes 2005, 37–8).

In the city, three judicial districts were created with powers of rapid intervention. To prevent contagion, two strategies for removing corpses were adopted destruction and the grave. In both cases religious funeral services were dispensed with. This imposition of the Marquis of Pombal, who held full powers in his dialogue with other structures and institutions, obtained the sanction of Cardinal Patriarch (Araújo 1987, 329). In addition to the bodies inevitably incinerated by the fires set days on end in various parts of the city, barges loaded with corpses turned the waters of the Tagus estuary into the public cemetery that the city did not have. On the grounds that "the burials could not be delayed", thousands of bodies, tied with weights, were launched into the sea "some leagues beyond the bar" (Araújo 2005, 43). The operations of clearing the debris were carried out by "forced laborers", as the abbot Portal pointed out, who, in the course of their work, began to throw pitch on bodies in an advanced state of decay they found among the rubble (Sousa 1919-1932, 1928, 770).

Hunger and epidemics were prevented, thanks to severe and vigorous regulatory and supply measures. The prices of products, wages and rents were set at the values they had before the earthquake. To prevent hoarding, shipments of fish, cereals and food were distributed and sold in a controlled manner by officials of the Senate of the City Hall. The monarch had food distributed to the poor and homeless. Ovens and bakeries were built and, with the help of military detachments, the distribution of goods from the province was organized, exempt from taxes. The ships at the pier were rigorously inspected in search of looted objects and forced to unload wood, supplies and other necessary goods. Portuguese sailors were prohibited from joining foreign fleets and forced to serve, with lower salaries, on national ships (Serrão 2007, 147–53).

After the earthquake, the problem of treating victims became a priority. In the face of an incalculable number of wounded and sick, tents were set up in the enclosures of the convents and some palaces that remained standing, serving as improvised hospitals and wards. In addition, doctors, surgeons, and apothecaries of the province were called to

assist the needy population. The recovery of assets that still remained in the destroyed dwellings was hampered by the actions of plunderers, incendiary deserters, and thieves, who quickly began to pillage what they found. The entrances to Lisbon were policed by the military and manhunts gave way to the bloody repression of real and alleged criminals. Subjected to summary justice, wrongdoers were tried and hanged in exemplary fashion. Forces proliferated in the city – the most mentioned are those of S. Paulo, Buenos Aires, Cotovia and Ribeira (Araújo 2005, 44).

Beggars and fugitives were forced to work on removing the rubble. Walking through the rubble became a way of life in the city in ruins. Having opened some clearings for circulation in downtown Lisbon (the *Baixa*) and while the main cleaning operations were still underway, the future Marquis of Pombal ordered the survey and cataloguing of the squares, streets, houses and public buildings that had suffered ruin. Many workers and soldiers were deployed for these tasks. In December, differences in elevation were already being studied and the land areas to be filled in were delimited. Building was prohibited near the areas hardest hit by the earthquake, until a summary inventory of losses was concluded, and the reconstruction plans of each neighbourhood, already commissioned, were known.

In Lisbon, panicked populations who had sought out the countryside were coerced into returning to the city. Provisionally installed in shacks, many families relocated permanently, leaving behind their old parishes. In six months, about 9000 shacks were built. Living in shacks became a generalized trend in the parishes of Belém, Alcântara and Santa Isabel. In the image of the imposing *Barraca Real* (Royal Grand Tent), some nobles and bourgeois spent large amounts on the set up and installation of these wooden residences, decorating them luxuriously. But on December 30, a royal decree prohibited the construction of tents with frontal wall sheds. And to halt the tendency of uncontrolled occupation of the Baixa (downtown), Sebastião José de Carvalho e Melo ordered the demolition of shacks on site (Lousada and Henriques 2007, 183–97).

The panorama of dwellings in certain urban sections was full of sharp contrasts. In combination with the new style of housing, models of suitable shoes became common, high-tops, with a small buckle and

short tongue, and Hungarian-style capes. On the site of Cotovia, in the brand-new parish of Santa Isabel, about 25,000 inhabitants were concentrated in 1756, part of which were housed in shacks (Chantal 1962, 47).

From 1756, businesses in the city of Lisbon began to pay a fee of 4% on the customs duties of any imported goods. The proceeds of the tax, administered by the Board of Commerce, were intended for the reconstruction of the city, and aimed, in particular, at building a Stock Exchange and recovering port infrastructure. By political imposition, Brazil's donation for the reconstruction of the capital of the Empire was equally high: 1,200 *contos* of *reis* payable in thirty years, an amount to which 14 *contos* de *reis* and an appreciable sum of precious stones (França 1987, 72) were added. The promise of this colonial donation faced considerable difficulties in collection and sparked protests in the most important captaincies of Brazil.

On the eve of the seven-year war (1756-1763), the belligerent European monarchies also sent pecuniary aid to the government of Portugal. Construction materials and supplies also arrived from Spain, Britain, Germany and the Netherlands (Campos 1998, 289–99). From the point of view of international politics, the support of the English allied monarch Jorge II to D. José was relevant. In addition, other kind of supports where also claimed by the community of English residents in Porto and Lisbon.

Finally, D. José requested and obtained from Rome the right to use part of the proceeds of the rents and legacies of the churches for the reconstruction of the temples. The pontifical brief of August 25, 1756 ordered that the third part of all the revenues, tithes and duties charged by the parish churches be allocated to that purpose. However, it exempted from this tribute the parish churches without income and having a small ecclesiastical allowance, a situation claimed by most parishes displaced from their former headquarters (Abreu 2007, 237–46). Despite the financial effort required of the church, the old ecclesiastical mesh of the city seemed definitely compromised, because the initial rule of not changing the location of the churches in the *Baixa* (downtown) was not respected in the reconstruction plans conceived and justified by the old and experienced military engineer Manuel da Maia.

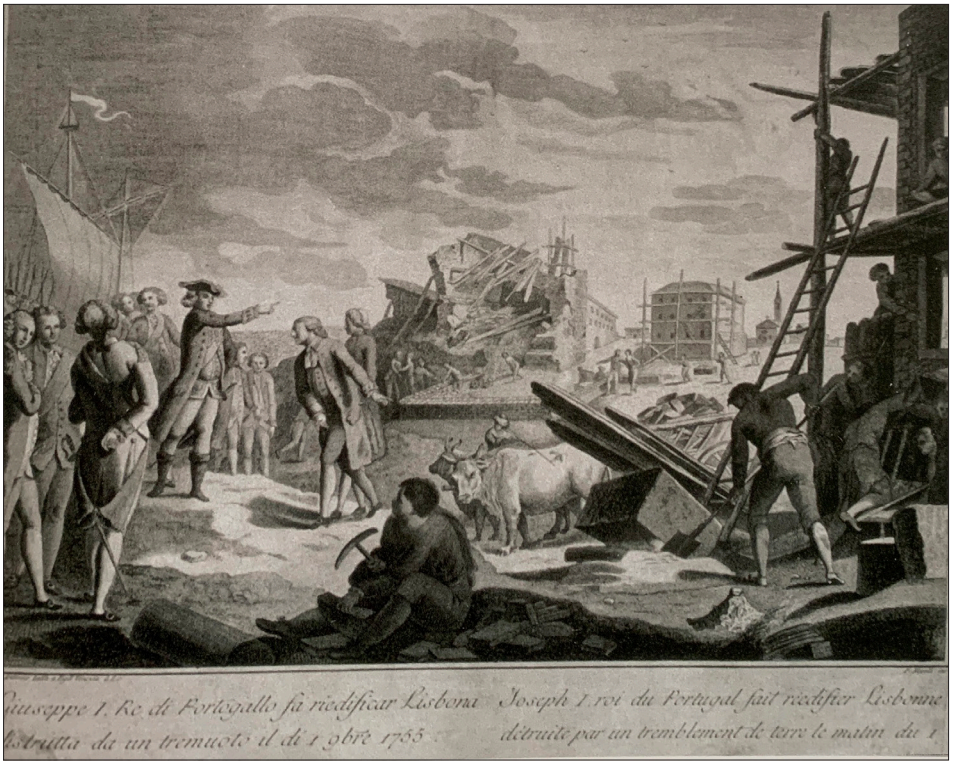

Fig. 2. Reconstruction works being inspected by King José I. Coper engraving, eighteenth century. City Museum of Lisbon, J. Kosák Coll.: Historical Earthquakes.

The reconstruction of Lisbon

The process of reconstruction of the *Baixa* (downtown), viewed with absolute priority by the office of Sebastião José de Carvalho e Melo, would give rise to a complex and comprehensive urban and architectural debate, widely described and documented by Portuguese historiography (França 1987; Santos 2000). In essence, the solutions found came out of the school of military engineering, with proven experience in the fields of architecture and colonial urbanism, since the beginning of the century (Rossa 2004, 34). The technical and theoretical skills of this up-to-date and experienced corps of engineers, under the supervision of the mestre de camp-general Manuel da Maia, were evidenced both in the speed, efficiency and rationalization of working methods, as well as in the pragmatism of the projects presented (França 1987, 77–93).

A month after the disaster there was already a draft definition of the program to follow. In the first report, called the *Dissertation*, delivered to the Duke of Lafões on 4 December – which constitutes the first part of a vast memorial on the reconstruction of Lisbon completed in March 1756 – Manuel da Maia laid out, within a typically Cartesian logic, five possible hypotheses for the reconstruction of the capital: to rebuild the city as it existed at the time of the calamity; to rebuild it with corrections, aligning and widening streets; in the spirit of the previous proposal tolerating only the construction of buildings with two floors; redraw it completely without pay attention to previous urban plans, using the rubble to level out the terrain; and abandon the old city, designing a "New Lisbon" in Belém, west of the old one, in direct dialogue with the movement of expansion and urban rehabilitation undertaken in the reign of D. João V. Manuel da Maia's preference for the this last solution was justified by the topography, road and river accessibility, and a good water supply to that area.

But any of the solutions faced posed various kinds of problems, duly addressed in this first document, such as: the location of the royal palace, the assessment and exchange of land, safety, hygiene and prevention of seismic risks in the urban fabric to be reconstructed.

In the second *Dissertation,* Manuel da Maia advanced solutions to another set of problems related to the reconstruction of the downtown, affecting the total area of the most affected urban perimeter and led to the evocation of the reconstruction models of London in the 17th century and Turin in the 18th century. In the downtown area of Lisbon to be rebuilt, the streets were to be projected "with competent liberty, both in their width and in the height of the buildings, which could never exceed the width of the streets" (França 1987, 86). In the building system, simple, safe and efficient methods were recommended that pointed to the rule of "symmetry in the height of the houses, shape of windows and doors" (*ibid*., 88). To meet this requirement, the prefabrication of standardized parts later complemented an anti-seismic construction system based on recourse to a wooden framework, "cage", to give greater elasticity and firmness to buildings. In this respect, "Lisbon affirmed, early on, the importance that industrialization would have in the organization and operation of construction sites" (Silva 2007, 103).

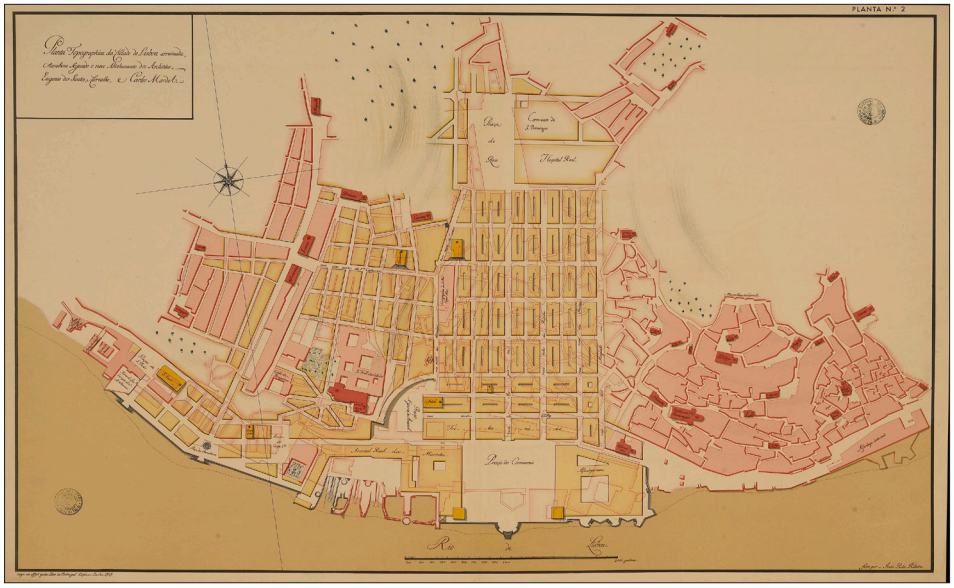

Fig. 3. Final plan for the reconstruction of Baixa-Chiado. (Pombaline downtown Lisbon), architects Eugénio dos Santos and Carlos Mardel, 1758. City Museum of Lisbon.

The definitions achieved resulted from the work carried out by three teams of engineers constituted within the scope of the House of Risk and Public Works, in which Eugénio dos Santos, inspector of the works of the Court, and architect of the works of the Ribeira Palace and the Senate of the City Hall, stands out. The plan he drew up was also approved by Lieutenant Colonel of Engineering Carlos Mardel, who did not collaborate in the surveys and exploratory works, but who was subsequently charged with the improvement of the architectural layout of the reconstruction.

Eugénio dos Santos's project has been considered the basic piece of the process of the Pombaline *Baixa*, in that it translates the reformist and enlightened spirit that presided over the reconstruction of the city (França 1987, 88). It is the work of a modern urban planner who smoothed out the topography into a flat plane over the rubble and inscribed on it an orthogonal layout of streets that connect two main squares, Rossio and Praça do Comércio, symbolically erected on regular platforms of social and urban renewal.

In the reticular territory between Praça do Comércio, facing the Tagus River, and Rossio Square, in the northern interior, public in-

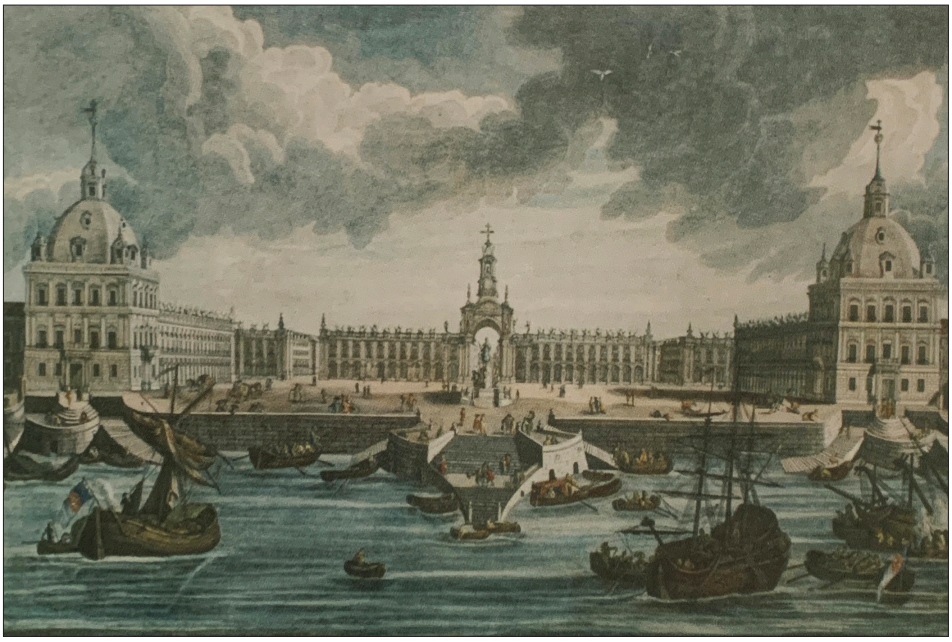

Fig. 4. Carlos Mardel's project for the reconstruction of Royal Commerce Square. Coper engraving, eighteenth century. City Museum of Lisbon, J. Kosák Coll: Historical Earthquakes.

stallations were projected (Senate, Stock Market, Arsenal and Royal Courts) and rental buildings were distributed along the adjacent streets, which was one of the distinctive marks of the new social landscape of the *Baixa* (downtown), with a bourgeois accent. Formally, the reconstruction work began after the publication of the law of 12 May 1758, which guaranteed new rights to the owners, imposed a five-year term for the building on each plot – which was not respected – and provided for special situations of transfer and mortgage of the property.

The signature of the Marquis of Pombal, affixed to many drawings of facades and elevations of buildings of the main streets of the *Baixa* (downtown), gave a political character to the *Baixa Pombalina*, a designation used to distinguish the rebuilt centre of the oldest part of Lisbon. Also, the effigy of the Marquis of Pombal was placed on the pedestal that supports the equestrian statue of D. José, placed in the centre of the Praça do Comércio. The square that symbolizes the great transformations carried out in the capital of the Portuguese empire is thus offered, for all to see, as a space of the consecration of power.

The seismological survey of 1756

To form an idea of the extent of the earthquake damage, the Marquis of Pombal, on the advice of Miguel Tibério Pedegache, Ribeiro Sanches, Soares de Barros and other illuminated figures, ordered the preparation of a modern national seismological survey, of scientific, political and social scope. The protocol of the survey, dated 1756, consisted of 13 questions, most of which addressed the direct observation of nature and the recording of anomalies or differences recorded in the territory, watercourses, climate, environment, etc.

Given the alarming information that was coming in at the Portuguese capital, the initiative of the Minister of D. José had become indispensable to guarantee the intervention of the State in the territories most affected by the earthquake. The survey was printed and carried out by the Ministry of the Kingdom to be responded to by the parish priests of all the dioceses of Portugal. It was based on the scientific observation of changes in the areas with the greatest seismic impact and used statistics as the means for assessing the buildings damaged and demographic losses.

The survey did not contain questions about the paraphernalia of phenomena generally associated with earthquakes throughout history – lightning, anomalous weather, the eruption of fire or steam from sulphur or other material – but instead asked "if fissures opened in the earth and what was noticed about them" (Fonseca 2004, 122). In addition, the survey pointed in the right direction in other specific issues, as these two initial questions show: "At what time did the earthquake begin on 1 November and how long did it last?" and the second one: "Did you perceive the shock to be greater from one direction to another? Ex. From north to south, or on contrary, if more buildings seemed to fall to one side or to another?" (*ibid*., 120). The method of observing nature was the key to deciphering what had happened, as revealed by the fifth question: "Did you notice what happened to the sea, to fountains, and to rivers?" (ibid.). The scientific intention of the survey is also very clear in regard to the tsunami. It wanted to know "if the sea went down or rose first; how much did it rise above the normal; how many times did this flux occur; how long did it take for the water to drop and rise again?" (*ibid*.).

The responses to the survey, compiled and studied by Pereira de Sousa (1932), point to the birth of a modern seismological understanding, which did not exclude the historical perspective in the way cyclical return and the time intervals of earthquake occurrence were dealt with. For this aspect, the local memory was counted on, in particular, the organization of the answers to the following question of the questionnaire of 1756: "Have there been any other earthquakes in living memory and what damage did they cause?" (*ibid*.).
At this juncture, the illuminated spirits of the two Iberian monarchies spurred pioneering initiatives in the survey of the causes and effects of the disaster. In Spain, however, immediately in November 1755, at the initiative of the Royal Academy of History and by order of King Filipe V, a survey of the damage recorded was launched in all the provinces of the neighbouring kingdom, which was more rudimentary and less ambitious. (Martínez Solares 2001). In comparison, as we have stressed, the seismological survey imposed by the Marquis of Pombal was inspired by a precise objectivity, and its aim was the physical understanding of the natural phenomenon. It should be noted that the debate on the moral and metaphysical significance of the earthquake occurred at the same time.

The public opinion and the (de)construction of the catastrophe

The expediency of using European periodicals to minimise the effects of the disaster, to counter errors or commonplace views, and to take advantage of the situation, laying the foundations for a continuing campaign of political propaganda, internal and international, in favour of the enlightened absolutism of D. José I is another entirely new and modern fact, which clearly reveals the perception that the clear-thinking Marquis of Pombal, minister of the monarch, had of the importance of European public opinion in the 18th century.
At the head of the government, Pombal not only took control of the crisis, he also planned important reforms, counting on the confidence of the monarch D. José, and maintained an on-going strong-arm position with some members of the titular nobility and with the Jesuits.

His rise in the royal cabinet was marked by crushing and sentencing to death several members of the first nobility implicated in the attack on the king in 1758, and by the expulsion of the Society of Jesus from the kingdom and overseas domains in 1759.
Soon after the earthquake, at the suggestion of the Prime Minister, the Portuguese embassy in the British capital tried to get in the good graces of the English government, requesting financial support and combating, through the press, the exaggerations and exploitations of Anglicans and Protestants in relation to Portuguese Catholics. The Portuguese diplomatic representation was not indifferent to the critical onslaughts of the Protestant sectors and, in particular, to the provocations in the pamphlets of the libertine Portuguese Francisco Xavier de Oliveira (Kendrick 1956, 57).
Internationally, the regulation of news with information on the earthquake, the civil and political protection of the people, and the reconstruction of Lisbon mobilized great figures of letters and the 17th-century Portuguese culture. This group included mathematician and astronomer Joaquim Soares de Barros, at the time corresponding member of the Berlin Academy and the Paris Academy of Sciences; physicist and instrument maker João Jacinto de Magalhães, a member of several academies who had good contacts within the international scientific community; the physician, counsellor and philosopher Ribeiro Sanches, residing at the time in Paris; the theologian and advisor António Pereira de Figueiredo, identified with the theories of Febrónio; and, among others, the career military man, endowed with technical and artistic ingenuity, cultivator of the Enlightenment, Miguel Tibério Pedegache Brandão Ivo, of Swiss descent, who was close to the future Count of Oeiras. This collaborator of Pombal – who before the earthquake had prepared a list of the most famous literati living in Lisbon for the *Journal* Étranger – was charged with the task of writing, as correspondent of the same newspaper, the first news of the disaster, authorized by the government of D. José I. The report sent on 11 October 1755, and published in Paris in December, was developed further and republished in Portugal with the title of New and faithful account of the earthquake that Lisbon and all Portugal experienced on November 1, 1755 (1756). The same correspondent of the French periodical press was responsible for the famous collection of engravings, composed of six views of the

ruins of Lisbon – the Patriarchal Square, the Opera House, the Basilica of Santa Maria, Torre de S. Roque, the church of St. Nicholas and the church of St. Paul. These images were engraved in Paris in 1757 by Jacques Philippe le Bas, engraver of the French Court, according to drawings sent from Lisbon by M. Paris and T. Pedegache.

If the drawings in the engravings captured the fallen beauty of the magnificent buildings in ruins, the writing about the disaster was dominated by the rigor of mathematicians and the calculating nature of politicians. In French and then in Portuguese, Pedegache's authorized words certified, in these terms, the earthquake that occurred on November 1, 1755: "at nine o'clock and forty minutes in the morning, the barometer being at 27 inches, 7 lines, and the thermometer of Reaumur at 14 degrees above the ice, the weather serene, and the atmosphere pure, shook the earth with three impulses" (Campos 1998, 204). Guided by obvious philosophical-naturalistic concerns, the author of the New and Faithful Account of the Earthquake had read Buffon's Earth Theory, which spoke of temporality and stratification of soils. He therefore pointed to the regularity of the historical intervals of the great earthquakes that occurred in Portugal in 1309, 1531 and 1755, launching the hypothesis of cyclical returns of seismological occurrences of identical magnitude in the national territory.

Regarding the earthquake of 1755, more occurrences of agency, propaganda and manipulation of information are known. Without being exhaustive, only two episodes related to the catastrophe are mentioned here, which achieved, by force of the press, great international projection. The first is a substitute for the publication of The Memories of the Main Measures that took place in the Earthquake that the court of Lisbon suffered in the year 1755 (1758), wrongly imputed to the academic Francisco José Freire and published under the pseudonym Amador Patrício Lisboa (Cardoso 2007, 169). The initiative of this compilation of laws, signed by the Minister of D. José, less than a year after the entry of Carvalho e Melo into the Great Family of the titular nobility, with the title of Count of Oeiras, prior to his ascension to Marquis of Pombal, is clearly political, as demonstrated by the dedication of the work that, by virtue of the high patronage that inspires it, ran, singularly, without licenses for printing. In fact, the Memories of the Main Measures are a monument to the majesty of D. José and the action of his minister.

A living expression of a time, this book of state enshrines, above all, the overcoming of the misfortune of the people and the triumph of the political action of their rulers.
But the imposition, by the press, of the majestic power of the king and Pombal did not end here. The campaign to disseminate The Memories of the Main Measures that took place in the Earthquake was echoed in France. The mathematician and astronomer Soares de Barros published, in the months of June and July of 1759, in the Journal des Savants, an article related to the wise governance of the Minister of D. José. And, in April 1760, the Journal Étranger came out with a long and laudatory commentary on the Memories of the Main Providences written by the secularized physicist and abbot João Jacinto de Magalhães.
The poet Le Brun hit right on the point when, in his Ode Au Soleil, sur les malheurs de la terre, depuis le désastre de Lisbonne, in 1755, he associated the attempts of regicide against the King of France in 1755 and in 1758 against the King of Portugal with the tragic event. The idea of transforming an unforeseen and brutal event into a temporal milestone indispensable to exalting the power of royalty was also present in the Latin and Portuguese Commentary on the earthquake and fire of Lisbon (1756) by Father Pereira de Figueiredo, a text that was published in Spain, Italy, France and Austria. This theoretician of political royalty later wrote Diary of the Successes of Lisbon, from the earthquake to the extermination of the Jesuits (1761), originally written in Latin, as was his previous book. It was intended to be read in Portugal and abroad, and in it, he developed a vision of the history of the government of Pombal polarized by two fundamental events: the earthquake of 1755 and the expulsion of the Jesuits (1759), this latter being presented in close connection with the dramatic episode of the execution of the Távoras and others implicated in the crime of lèse-majesté, of September 1758. In the same case he highlights the password of persecution against the Jesuits, namely against Father Gabriel Malagrida, accused of having inspired the conjuration (Tavares 2005, 135).
The rise and consecration of the Minister of D. José should therefore not be dissociated from this complex plot of events. The Diary of the Successes of Lisbon, written following the earthquake of 1755 and reprinted in 1766, thus crowns, on paper, an intense propaganda campaign around the government of the Marquis of Pombal (Araújo 2005, 127–37).

The cultural and philosophical impact of the Lisbon earthquake

After the catastrophe, in a conjuncture dominated by contradictory expectations – the passage of Halley's comet had been foreseen for the years 1757 or 1758 – omens more or less terrifying and allusions to unusual manifestations of fanaticism appeared in print on the pages of some European newspapers and in the Portuguese press. Alongside this type of news, there were leaflets with terrifying accounts and loose compilations of sermons by charismatic preachers. In England, *the Serious Thoughts occasioned by the late Earthquake at Lisbon* by Methodist John Wesley, published for the first time in London in 1755, by the end of the century, had gone through several editions. Judging by the editorial success of other Protestant and Catholic texts, which also attributed the earthquake of 1755 to the wrath of God, few would have been the Europeans who, in the eighteenth century, ignored and were unaffected by the multiple superstitious terrors fed and proposed by such tormented spirits (Löffler 1999).

In fact, it was in the universe of European readers that the "paper aftershocks" of the Lisbon earthquake (Lisboa 2007, 67) were felt. The unexpected effects produced by the earthquake and which passed into the domain of the public sphere resulted, to a large extent, from the complementarity of the communication system established between newspapers interested in expanding their business and the public avid for sensational news. This system mobilized new channels of circulation of information and was successful thanks to the dissemination of reports supported by witnesses considered credible. Therefore, the European impact of the earthquake was due, in the first place, to the imaginary, written and visual production that it provoked (Araújo 2007b, 138–46). The sensationalist load of the moment fed tragic descriptions attributed to survivors, whose correspondence, actually written or simply imagined, became a genuine teaser in the pages of the periodicals with the widest circulation (Lüsebrink 1999, 303–10). Family and intimate letters, after being retouched and added to, were sent to press, in the same way that, under the cover of artfully designed envelopes, purely fanciful and abysmal tales of stories and fragments of life without concrete existence. This significant relationship between facts and ideas is a reference, on another level, to the "reports of successes" that embody the common perception of the event and the reactions of fear and panic that it provoked.

The "reports of successes" were circumstantial texts, anonymous or not, in verse or prose – allegedly news reports – printed on coarse paper, folded into small notebooks and sold at low price. A minor literary genre, the "reports of successes" disseminated distorted, omitted, fanciful and uncertain accounts of unforeseen events (Araújo 2006, 301–19).
Through this kind of narrative accessible to the public, false and pathetic informative reports about the Lisbon earthquake were disseminated (Saada and Sgard 2005, 208). Despite being deliberately false, the news presented itself as true accounts. They were believed because of the mention of an eyewitness or they ran as anonymous truths accredited only by the media that supported them, the newspapers, the engravers, and the press. The most alarmist and fanciful papers were the ones that sold the most, and the most exuberant images of the catastrophe led to the creation of an unlikely visual archive. Ultimately, on a European scale, the acceleration of the communication network around the disaster ended up feeding the existence of facts and images that did not correspond to reality (Quenet 2005, 348–55).
What was left unsaid about the catastrophe, based on the recognition of the sudden, unforeseen, and incomparable nature of the earthquake of 1755, seems to sanction both the lowest common denominator of the word and the maximum rhetorical and imaginary investment surrounding the event. This fact refers to the perception of the time and place of catastrophe, because what dominates "are forms of tearing and rupturing its fabric, through which man must find a new way of looking and a new language to be able to face what has changed" (Buescu 2005, 54).
In this regard, it should be noted that the spatial displacements the engravings show express the pathos of the imaginary observer. Most of the earthquake images of Lisbon were conceived by artists who had never been in the Portuguese capital. In the engravings that circulated in the European Enlightenment, the houses in ruins did not depict those of Lisbon, but those of the engravers' countries of origin. They feature wooden beams, fronts and roofs sloped the way of buildings in northern Europe; the streets on which the rubble piles up recreate an unreal "somewhere else"; the monumental buildings in ruins represent existing sites, depicted with traces of invention; the places of refuge show scenes of everyday life, sometimes fairytale-like, sometimes tra-

gic, involving mobs of survivors who wander about in tatters or in fantastic costumes between shacks.

These images established a "vulnerable memory", not of the event but of the *pathos* it generated (Araújo 2005, 87). It represented an imaginary "us" and established a collection of unlikely images that, from the urban point of view, corresponded to n framework that was easily recognizable in the countries of origin of the authors of these prints. Therefore, on a European scale, the visual archive of the earthquake contributes to forging, on the imaginary plane, fanciful outlines of a so-called urban and patrimonial identity.

If the visual field of the catastrophe, with the deformations pointed out, brought man back to the fragility of his condition in the space of a great city, the domain of natural philosophy invested in the deciphering of the enigmas of the earth, and earthquakes have been, since antiquity, one of these larger enigmas.

At a time when science-related themes gained, albeit controversially, a popular audience, the Baron of Holbach wrote two long entries on volcanoes and earthquakes in the *Encyclopédie* Diderot and d'Alembert. The French philosopher placed himself on the antipodes of the common provincial and astrological judgments used to explain natural accidents and other physical phenomena (Ferrone 1989). Thus, in opposition to the uncertainties and indeterminacy of charlatans and disseminators of false science, he argued that volcanoes and earthquakes had identical causes and that, when they happened in a certain place, released vapours and energy into the global mass of the planet. (Quenet 2005, 350)

In the same vein, the Portuguese Ribeiro Sanches, a close associate of the Encyclopédie group, also attributed the explanation of the Lisbon earthquake to an exclusively natural causality scheme. In his *Tratado da Conservação da saúde dos Povos. Com hum appendix: Consideraçoins sobre os Terremotos (1756), he summarized the ideas of Pierre Bayle expressed in Pensées diverses sur la comète (1682-83).* He considered it to be as reprehensible to determine God's purposes through the stars, as to suspect that He works miracles and interferes in the course of Nature (Araújo 2007a, 315). He therefore ridiculed those who spread the idea that the passage of the Halley comet, predicted for 1757 or 1758, was an omen of new and terrifying events and seismic phenomena. According to Ribeiro Sanches, after the "illustrious philosopher and astronomer Isaac Newton, we look

today at these celestial bodies with the same serenity with which we contemplate Jupiter or Saturn" (Sanches [1756] 1966, 361). Finally, placing the self-confidence of reason at the service of the progress of science he stated:

> An eclipse of the Moon or the Sun does not frighten us, because we know the cause; … if we knew the cause of the earthquakes, as well as we know that of the winds, thunderstorms and thunder, we would not consider, perhaps, these remarkable movements of Nature as a punishment from heaven, nor would we take from them predictions for our total ruin (*ibid*.).

These words were written at the same time that the Scottish philosopher David Hume concluded his famous *Four Dissertations,* the first of which was entitled *The Natural History of Religion* (1757), in which he condemns the religious use of strange phenomena and states that natural disasters or calamities are part of the kind of events that the common man spontaneously attributes to the direct intervention of Providence. On the strictly philosophical level, Kant goes much further. He begins by stating that the

> Great events that affect the collective destiny of men rightfully awaken this famous eagerness for novelties, which is what is extraordinary arouses in all and obliges us to inquire of their causes. In such cases, the obligation to the public of nature's investigator will be to account for the knowledge that observation and research may provide to him (Kant 2005, 41).

Then, in pointing out with solid argument the separation of the philosophical field from the religious, he renounces the indiscretion of discovering God's purposes in the movement of the earth (Giacomoni 2004, 135–6).
Kant, in thus distinguishing the creation from the work of the Creator, that is, by denying to the founding power of God the attribute of the world's legislator, he also renders meaningless the question of God's righteousness and transforms a natural accident into an objective indication of the failure of theodicy. Let it be remembered that this neologism had been invented by Leibniz – *Essais de Théodicée* (1710) – to deal with theology's lack of answers to the questions posed by the new

world order, established by Newtonian physics, and to lead philosophy to debate the centrality of the problem of God's defence.

Contrary to Kant's critical thinking, which was not immediately disseminated, the writings of Voltaire – who in the year immediately following that of the earthquake wrote *Poème sur le désatre de Lisbonne* (1756) and, shortly afterwards, published the famous novel *Candide, ou l'Optimisme* (1759) – were widely published in France and other European countries (Larochelle 2005, 225–46; Baczko 2007, 277–86).

In the poem, the deist Voltaire rises up against the passivity of the human creature in the face of the "disaster", proclaims the revolt of "reason" against the existence of evil and associates the moral fatality of evil with the idea of divine Providence. In the novel *Candide, ou l'Optimisme*, he does not miss the opportunity to satirize, recalling what had happened with the Lisbon earthquake, the constant atrocities that the gazettes of the time, voraciously read and commented on, assumed the responsibility of reporting.

Without ever abandoning the ironic register, the French philosopher ridicules the way man discards his mistakes, justifies the brutality of his actions and integrates into the providential plan of God such absurd events as a battle, an auto-da-fé, an earthquake. Voltaire's critical resourcefulness did not leave other philosophers indifferent, notably Jean-Jacques Rousseau, who rejected the tragic view of the disaster, renders the idea of moral evil meaningless and emphasizes, instead, the notion of man's responsibility for worsening the effects of the Lisbon earthquake (Besterman 1956, 7-24). In his opinion, the unpredictable and brutal nature of the earthquake would forever be linked to the negligence of the men who built the beautiful Portuguese capital in an unstable area, with tall and unsafe buildings. For all purposes, Rousseau sought to point out, circumstantially, that natural phenomena were not entirely independent of men's choices and actions over nature. The correspondence exchanged between Rousseau and Voltaire regarding the 1755 earthquake shows that the distinction between natural disasters and disasters caused by human action has been also a topic of debate in the European Enlightenment.

Placed at the epicentre of a modern communication network built from verifiable information, fake news and images of devastation and ruin, the Lisbon earthquake marked the European agenda, the cultural debate

of the Enlightenment and the political and urbanistic campaigns of the Pombaline era. The historical impact of the catastrophe does not cease to awaken our attention today to the emergence of old and new risks and vulnerabilities in the complex and technological contemporary societies.

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