

Learning from Disasters...

Lisbon 1755

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Response, recovery and reconstruction:

Within the first weeks, camps are established by the government for the homeless. Water and food are distributed to the homeless and tents are set up.

To keep the city safe, the army patrols streets and city borders. The death sentence is still in effect.

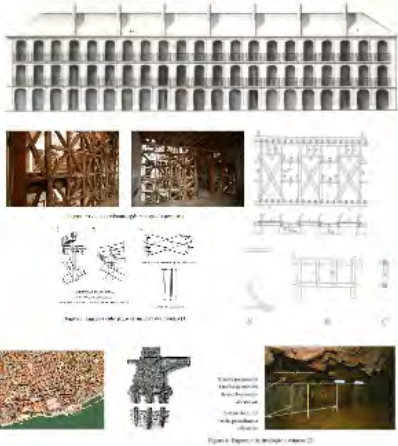
Food and aid from the UK government totalling £100,000 is agreed on the 18th of November 1755, but first ships only make land in Lisbon on the 15th of February 1756 (last arrivals are in mid-March). Spain and other countries also send support.

29th of November 1755 a law was passed demanding a survey of land ownership to avoid disputes in land tenancy.

3rd Dec 1755 law was passed forbidding construction outside the city walls. 30th December forbidding construction in neighborhoods that were damaged.

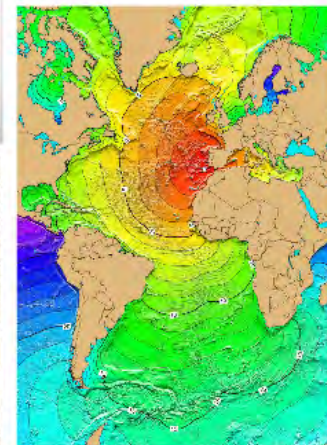
Government decreed a freeze on salaries in the construction industry to prevent increases and a freeze on construction material prices.

The plan for reconstruction was finally presented on 12 May 1756 and works start with a compulsory purchase of all land in the city, which was then redistributed, offering first preference to the original owners. Each buyer committed himself to reconstruction within 5 years.



**Sebastião José de Carvalho e Melo (1699-1782)
Later Marquis of Pombal**

"Let's bury the dead and take care of the living"



9:40 am 1st of November 1755

Earthquake:

- 8.7Mw magnitude
- IX-XI Mercalli scale
- 10 minutes
- after shocks felt for months.

Tsunami

- 20metres wave
- 3 waves roar through city (reaching up to 500m inland)

Fire that raged for 6 days (temperature up to 1000C)

50,000 dead (40,000 in Lisbon of a population of 275,000- some estimates are much higher up to 80,000)

85% of buildings in city destroyed:

- 17,000 of 20,000 houses
- 32 churches
- 60 chapels
- 31 monasteries
- 15 convents
- 53 palaces



A city of priests, merchants, emigrants, and lust.

"while the view from the Tagus was indisputably fine, the first impression of those who clambered ashore (...) did by no means correspond with its external magnificence."

"Poverty was more evident than in any other capital in Europe, and violence was endemic."

1755-Lisbon





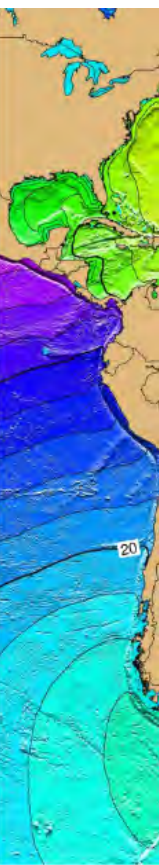
1755-Lisbon



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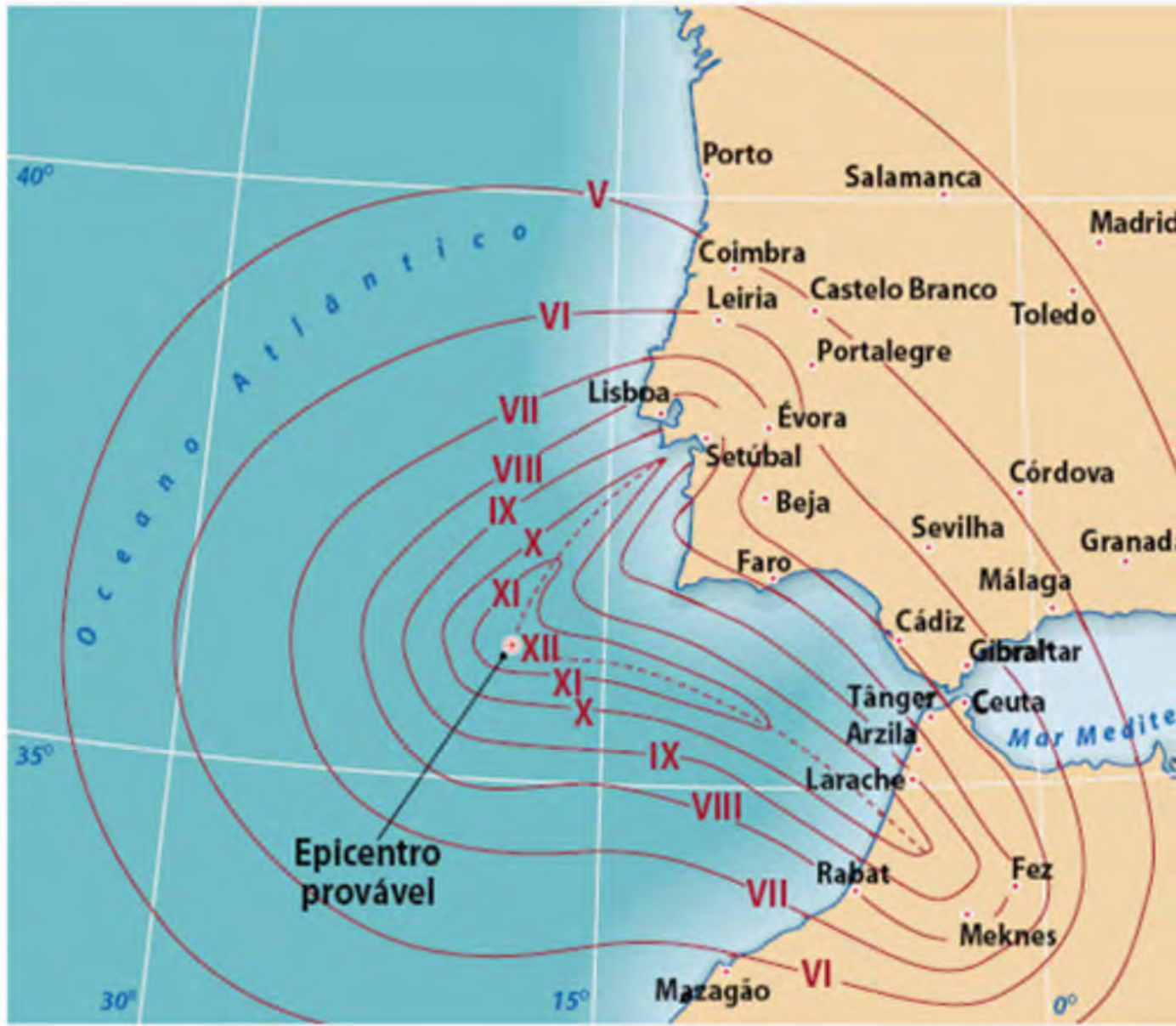
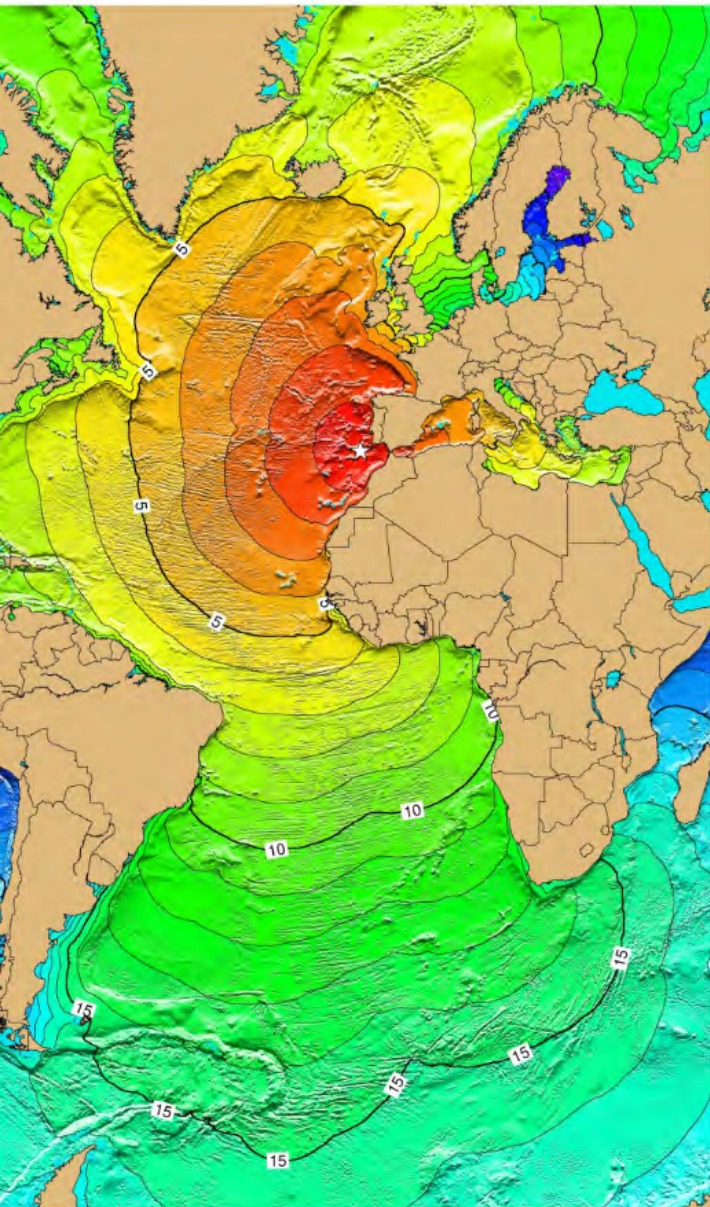
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 2-Rebuild the same with wider streets
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 4-Use the rubble as fill to change the levels, make
 to flood and have streets with same width and hei
 5-Move the city



des temples épius, et praire, horreux, onomique verum
ca morte traherem coacti sunt, terra multas subinde pu
amur. urbis thecauri inter ruinas sepulta sunt.

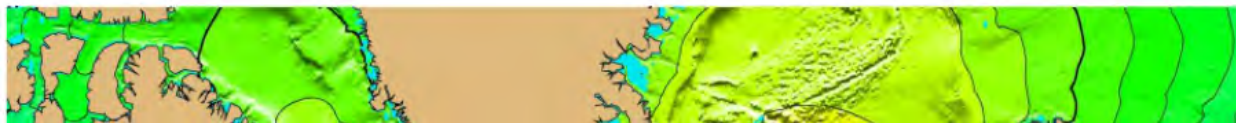
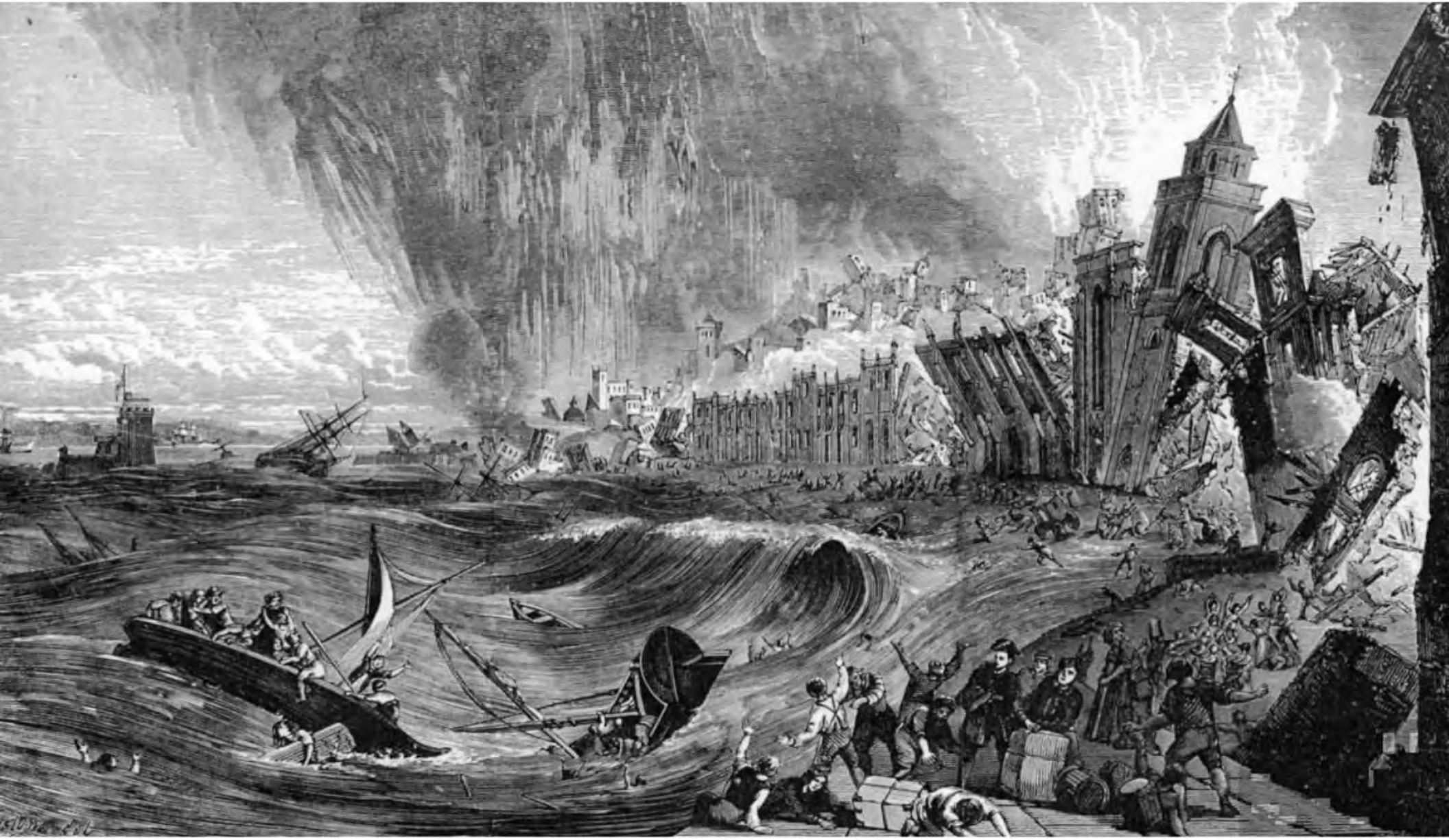
Crime des Königreichs Portugal war bisher die Rege
na und wurde wegen seiner herrlichen Tempel, Palläste,
er die schönsten Städte von Europa gezählt. Allein der
de sie durch ein entsetzliches erschütterndes Erdbeben fast

Das flüchtige geschickte der Wind durch die ganze Stadt ausbreitete, u von welcher alles
in den Klüften war verzehrt wurde. Den König mit der Königl.ichen Familie hat die Ge
liche Verschönerung glücklich erhalten, indem sie sich in dem nahe gelegenen Kloster u Schloss
of Bethlehem befanden hatte. Das übrige Volk ertrug mit fast freier Hand, wo sie zwar
Leben, das aber wegen Frost, Mangel, Hunger und Durst, Schmerz und Qual, unersetz
war, als der Tod selbst. Davon sprachen, aber doch jenseit wollten, daß durch das zum De
wütende Erdbeben ihnen alle ihr Vermögen, mit allen Königl.ichen Schätzen, Reichth
them und Vermögen, das darinnen saßen, in den Abgrund verreckt worden seye.

RUINE EVERSE & OLYSEPPONIS.

RUIN DER STADT LISABONA.





Sebastião José de Carvalho e Melo (1699-1782) Later Marquis of Pombal

"Let's bury the dead and take care of the living"



The birth of seismology. Carvalho e Melo orders a country wide survey to understand:

- How long did the earthquake last?
- How many aftershocks were felt?
- What was the type of damage?
- Which animals behaved strangely?
- What happened to the wells?

4th of December 1755 first plans for reconstruction are presented by Manuel da Maia, Chief Engineer of the King:

- 1-Rebuild the same
- 2-Rebuild the same with wider streets
- 3-Rebuild the same with wider streets and max 3 storeys
- 4-Use the rubble as fill to change the levels, make city less likely to flood and have streets with same width and height.
- 5-Move the city

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*Plan Topographique de l'Etat de Lisbonne, avec
le Plan de la Ville & son Extension de l'Archeveque
Luis de Castro, & Carlos Mardel.*



- Creating a new modern city:**
- A plan by Eugenio dos Santos and Carlos Mardel Plan was chosen.
 - This plan took on board the “standard design” of private buildings.
 - Standardization of reconstruction, seismic design, sewerage system.
 - Public Fountains and Public Walk





Response, recovery and reconstruction:

Within the first weeks, camps are established by the government and wealthy private individuals. Water and food are distributed to the homeless and tented hospitals are set up.

To keep the city safe, the army patrols streets and city border and looters are given the death sentence.

Food and aid from the UK government totalling £100,000 is agreed in Parliament on the 18th of November 1755, but first ships only make land in Lisbon on the 19th of February 1756 (last arrivals are in mid-march). Spain and other European Nations also send support.

29th of November 1755 a law was passed demanding a survey of all damage, and land ownership to avoid disputes in land tenancy.

3rd Dec 1755 law was passed forbidding construction outside the city walls, and on 30th December forbidding construction in neighborhoods that had not been damaged.

Government decreed a freeze on salaries in the construction industry, a freeze on rent increases and a freeze on construction material prices.

The plan for reconstruction was finally presented on 12 May 1758, approved 15 June 1759 and works start with a compulsory purchase of all land affected by the plan, which was then redistributed, offering first preference to the original owner. Each buyer committed himself to reconstruction within 5 years or lose the land.



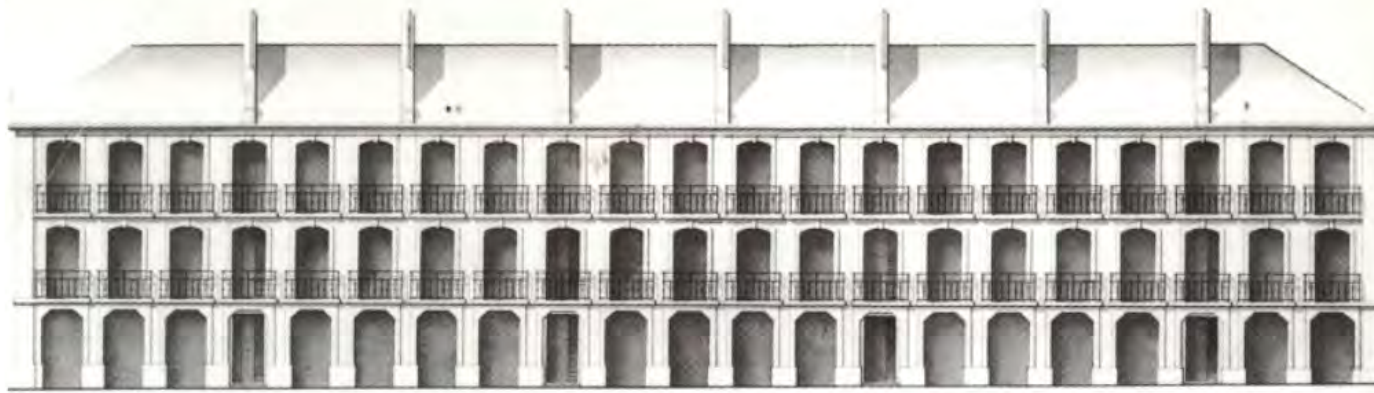


Figura 1: Gaiola Pombalina após remoção da alvenaria

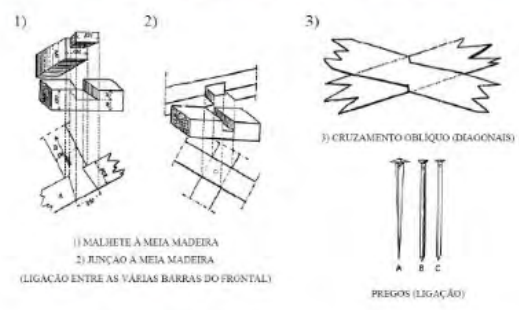
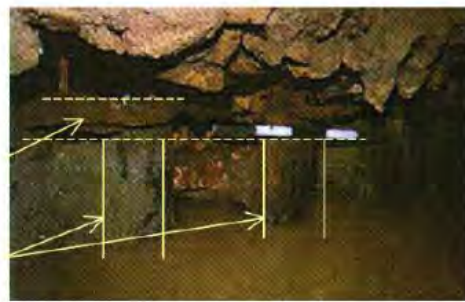
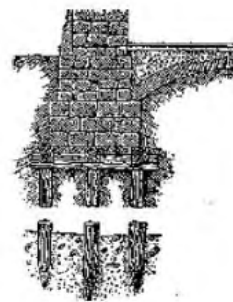
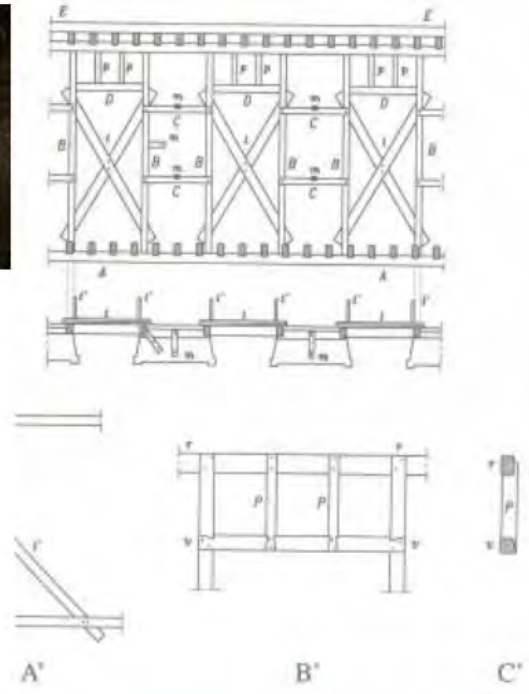


Figura 2: Ligações entre peças de madeira dos frontais [1]

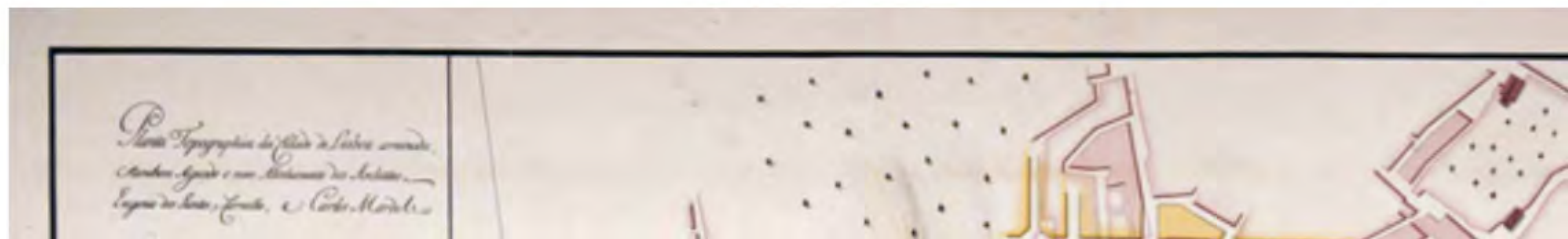


Barrote pertencente à malha de madeira de encastamento das estacas

Estacas de pinho verde, parcialmente submersas

Figura 4: Esquema de fundação e estacas [2]



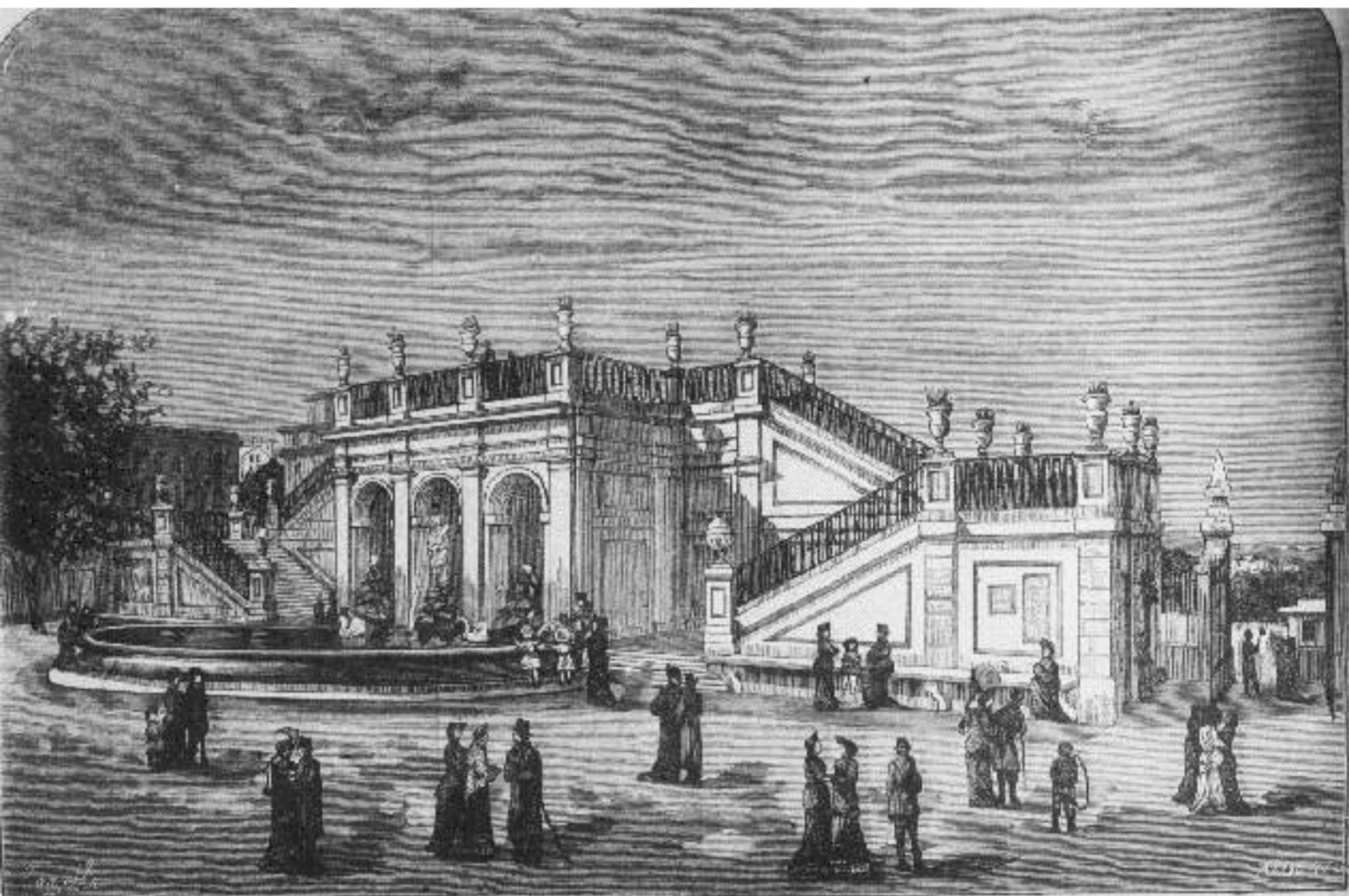




"Japans's 2011 tsunami was a transitional moment in moving Westport from planning to implementation".

**John Schelling (CREW Emergency Manager)
in National Geographic Feb2014**





LISBOA — PASSAGE PUBLICO DO ROCIO — Entrada da lade do Norte que se ve ser demolida para a abertura da Avenida de liberdade (Desenho do natural por D. Coellha)



Eigentliche Vorstellung des grausamen Erbebens so die Königl: Haupt und Residentz Stadt Lisabon in Portugall betroffen, fast gänzlich verwißtet und zu einem Stein-Haußen gemacht.

Solches geschah den 1. November 1755. an Allerheiligen vormittag um 10. Uhr da das meiste Volk in den Kirchen versamlet war, und eine hefftige Feuers Brunst machte den sturz der Paläste und Häuser noch gräßlicher und viele 1000. Menschen, fanden unter den fallenden Häusern und Steinen ihr Grab. Das wirßten der zerquetschet und das weinen der Kinder und verlassen war so erbärmlich, daß es mit keiner Feder fast zu beschreiben ist, daß meiste unter den publicquen Gebäuden haben gelitten, Der Königl. Pallast N:1. Die Krauth 2. und die Gegend des Schiffplatzes 3. Erriehworts weiß haben die Portugesen, vor Zeiten pflegen zu sagen, wen Gott lieb hab dem geb er in Lisabon ein Hausz. Weilen Gott sie, wie alle Menschen, durch diß Erbeben warnet seine Macht und Gewalt zu erkennen Buß zu thun und ein frommes Leben zu führen, welches Gott uns allen durch seine Gnade verleihen wolle,

Fr:2 Büchler sel Erben excud. 2 J.