

# The tea at the Park of Pena

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## Abstract:

28 out of 100 plants of tea Camellias (*Camellia sinensis*) survived from the 19<sup>th</sup> century original tea plantation at the Park of Pena in Sintra. Located at the top of the Sintra's mountain, the Park of Pena is a romantic park idealised by the King consort of Portugal Ferdinand II, a prince of German origin.

The King consort Ferdinand II carried out a radical transformation of the Sintra landscape, listed by UNESCO, since 1995, as a World Heritage Site in the cultural landscape category. From 1839 onwards, the park was built out of the ruins and on the grounds of a 16<sup>th</sup> century Hieronymite monastery. The Park and Palace of Pena resulted from a profound reaching, epic and unique construction project on a scale in keeping with the greatest of European romantic parks and duly recognised as the pinnacle of Romanticism in Portugal.

The Tea Hill, a neglected area of 4,98 out of 85 hectares, hosted the first plantation of *Camellia sinensis* in Portugal and is currently under study and restoration by Parques de Sintra – Monte da Lua, S.A. <sup>1</sup>

**Key Word:** *Camellia sinensis*, tea, heritage garden, 19<sup>th</sup> century, Park of Pena

## 1. A brief description of the grounds

Ferdinand of Saxe-Coburg-Gotha became the king-consort Ferdinand II of Portugal after marrying Queen Maria II in 1836. He was a patron of the arts, a keen painter, drawer and musician, who became known popularly as the Artist-King.

**Figure 1 - King Ferdinand of Saxe-Coburg and Gotha (J.F. Layraud, 1877).**



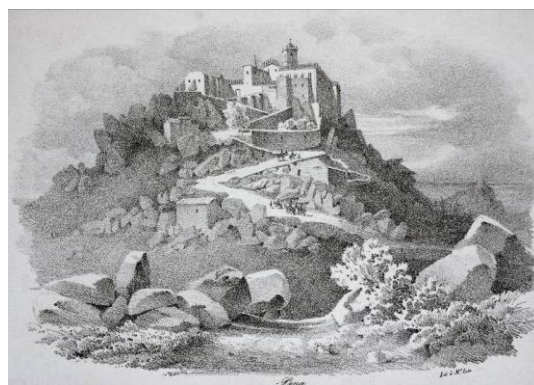
In 1838, the king consort bought the abandoned Hieronymite monastery of Pena, transformed it and built a new palace.

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<sup>1</sup> Parques de Sintra – Monte da Lua, S.A. (PSML) is a state-owned company, established in 2000, following UNESCO's recognition of the Cultural Landscape of Sintra as a World Heritage site in 1995. The company's shareholders are the public institutions responsible for preserving and managing the region's natural and cultural heritage. PSML has been entrusted with responsibility for the management of the state properties in the area, in order to restore, maintain and promote them, keeping them open for public fruition. The Company is thus responsible for the management of the Park and Palace of Pena and the Chalet of the Countess of Edla, the Park and Palace of Monserrate, the Gardens and Palace of Queluz, the National Palace of Sintra, the Moorish Castle, the Capuchos Convent and Vila Sassetti among many other properties, covering a total area of 660 hectares of gardens and forests.

All together they became a new royal residence. After he had successively acquired several neighbouring properties, the convent's original estate became a part of the 85 hectares of the Park of Pena.

**Figure 2 - The Monastery of Pena, depicted by Clémentine Brélaz in 1840.**



**Figure 3 - View of the Palace of Pena seen from the High Cross (PSML, 2015).**



The changes that he planned in to the original landscape of Sintra reminded Ferdinand II of his homeland and the Park and Palace of Pena became the object of the monarch's close attention. After the queen's death in 1853, Ferdinand II met Elise Hensler in 1861 when she was performing the role of Oscar in Verdi's *Un Ballo in Maschera* at the Royal Opera House in Lisbon, thus beginning a new chapter in his life. Elise Hensler, born in Neuchâtel (Switzerland), had lived since her childhood in Boston (USA) and married the king in 1869, becoming Countess of Edla.



**Figure 4 - Chalet of the Countess of Edla (PSML, 2015).**

Together, they continued the work of landscaping the Park of Pena, which included the building of a chalet for the Countess, together with new gardens, the Ornamental Farm, the Farm Greenhouses and the focus of the study, the Tea Hill.

The Park was landscaped from 1839 onwards, with the addition of extensive water systems and water features (cascades, ponds, lakes and fountains),

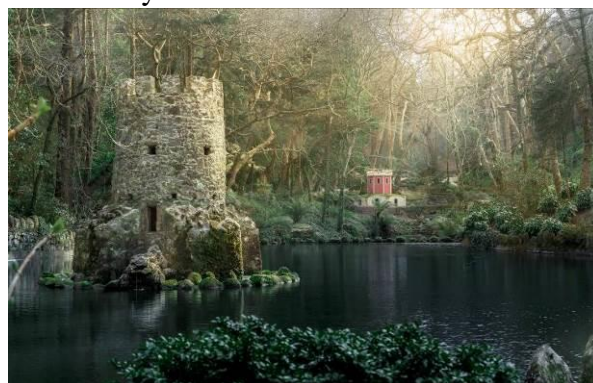
embellished by Neoclassical, Neo-Gothic, Islamic and Romantic pavilions and small garden buildings (Temple of the Columns, Fountain of the Small Birds, Water-wheel, Manueline Chapel, the Monk's Grotto, etc.), farm buildings (barn, aviary, and small huts and animal sheds), greenhouses and many other ornamental features, such as bridges and pergolas. The locations of these garden structures were defined by a complex visual system organised around a series of different axes. The link between constructed architecture and landscape architecture was an unexpectedly coherent feature of this great Romantic project. The project included a desire to return to nature and enhance the surroundings of the Palace of Pena through the systematic planting of a wide variety of species, originating from all kinds of different terrains and imported from all over the world. In this sense, the Camellia collection was particularly notable. The work of landscaping the park continued practically uninterrupted until the mid-1870s and dramatically transformed the landscape of the Sintra hills from their original barren and rocky state.

Although the design of the Park of Pena was inspired by many contemporary influences, most of its plantations and numerous garden structures appear to have benefited from the contribution of Baron von Eschwege, a great geologist, geographer, architect and metallurgist with profound knowledge in fields like hydrology, botany, gardening, farming and forestry that became in 1802, at the young age of 25, 'Director of Mines in Lisbon. It is also believed that the gardens were laid out with the assistance of his French gardener François Bonnard and Wenceslau Cifka, who, as well as being an artist and an amateur photographer, had the necessary professional skills, since he had been the chief administrator of the forests of the German Reichstadt before settling in Portugal.

The scenographic dimension of this creation and the eclecticism of the different styles that were used have turned this area into a theme park of history and architecture.

**Figure 5 – Valley of lakes (PSML, 2015).**

The Park of Pena was created as a total work of art (*Gesamtkunstwerk*), resulting in a place where visitors are frequently surprised to find themselves amid scenery so intensely luxuriant and dramatic as to be worthy of a Wagnerian Opera.



## **2. The Camellia plant at the Park of Pena**

From October to April, the parks, quintas and gardens of Sintra are brightened by the delicate Camellia flowers and became the motif of several celebrations held in Sintra, such as the colourful balls and parties that took place in the town, organised by the gardeners from Sintra. More recently, in the 1950s, they even gave their name to an old motor car rally in the hills of Sintra. Camellias rapidly became one of the symbols of Sintra.

Camellias were introduced into the gardens of the Palace of Pena, in Sintra, by king-consort Ferdinand II in the 1840s. They were purchased from the best nurseries in France, Belgium and Italy, and even Chinese varieties were imported via England. Later these collections were enlarged through the addition of cultivars produced in Portugal, especially in the region around the city of Porto.

In the region of Sintra, ideal conditions exist for the growth of Camellias: acidic soil, a mild climate and frequent rainfall. For this reason, as soon as the landscaping of the park began, very good European plant growers supplied and sold a remarkable variety and quantity of camellias to king Ferdinand II. Among these suppliers, the Marques Loureiro nurseries (in Porto) particularly distinguished themselves in the homage that they paid to the king and the Portuguese Royal Family, by developing a series of camellias bearing royal titles: 'Dona Maria II, Rainha de Portugal' (1865, cherry red), 'Dona Maria Pia, Rainha de Portugal' (virginal white with crimson stripes), 'Princeza Dona Amelia' (1865, pure white), 'Princeza Real' (1865, cherry red speckled with white), 'Dom Carlos Fernando (Príncipe Real)' (1865, delicate pink), 'Infante Dom Augusto' (1865, pink with white stripes), 'Dom Pedro V, Rei de

Portugal' (1872, pure white, with pink specks and stripes), 'Dom Pedro, Imperador do Brasil' (1865, white, with crimson stripes and specks) and 'Condessa d'Edla' (1872, pure white).

The PSML project for the botanical identification of the Camellias in the Park of Pena, led to the distinction of "Camellia Garden of Excellence" by the International Camellia Society (ICS), during its biannual congress in 2014 (Pontevedra, Spain). This project has been developed since 2009 with support from the Portuguese Camellia Society and from camellia specialists such as Prof. Armando Oliveira and Mr. António Assunção, (founder of the Viveiros Flavius at Guimarães and well known grower of camellias).



Figure 6 - *Camellia japonica* 'Dom Fernando II de Portugal'.

Figure 7 - Professor Armando Oliveira and Mr. António Assunção (PSML,2015).

The main goals of the project are, on the one hand the safeguarding and maintenance of the valuable natural

and cultural heritage of the camellias as well as to increase its public awareness, through responsible promotion and marketing.

To underline the place of the Park of Pena as the most important collection of camellias in southern Portugal, the project included the study, classification and recovery of the extensive collection, which is comprised of 2258 old specimens, mainly concentrated in four areas of the Park of Pena: the Garden of Camellias, the Garden of Queen Amelia, the Garden of the Countess of Edla and the Tea Hill. 318 specimens have been classified into 205 different cultivars, belonging to 5 different species: (*Camellia japonica* L., *Camellia rusticana* Honda, *Camellia reticulata* Lindl., *Camellia sasanqua* Thunb., *Camellia sinensis* (L.) Kuntze).

Figure 8 – Camellia Garden at Park of Pena (PSML, 2015)

Figure 9 - Tree labeling (PSML, 2013).



### 3. The Tea Hill Restoration Project

Since 2009 PSML has developed systematic studies, projects and activities dovetailing the implementation of the Recovery Plan of the Park of Pena from 1995, and were restored the following garden areas: the Garden of the Countess of Edla (in 2012), the Ornamental Farm (in 2013), the Garden of Camellias (in 2013), the Queen's Fern Valley (in 2014), the Valley of

the Lakes (in 2015) and The Farm Greenhouses (in 2015).

In 2015 the restoration project of one of the most special garden areas began - the Tea Hill. The intervention area spans across 4,98 hectares inside the park. The garden is structured by a network of paths that steadily climb and go over the top of the granite cliffs, where a viewing point can be found and enjoyed, corresponding to the third highest point in the Park of Pena 450m above sea level (behind the highest the High Cross 528m above sea level and the Palace of Pena).



**Figure 10 - Perspective on the granite boulders (PSML,2015).**

This site hosted the first planting of Tea Camellias (*Camellia sinensis*) in Portugal. According to the *Diário de Notícias* newspaper on 28 January 1883, Sintra was selected as the region for this experimental sowing of an important package of camellia seeds with the objective of testing the viability of launching the tea growing industry in the country. The plantation left the Park of Pena with an oriental scenario where the plants grow and prosper in the cracks of the cliffs.

According with Tude Sousa (a Forestry Engineer how dedicated a great effort on his career to the study of the Park of Pena as an unique Arboretum), in his article “The tea of the Pena” from 1948, The king Ferdinand II probably planted over 100 tea plants in the second half of 19<sup>th</sup> century.

On 15<sup>th</sup> of February of 1941 a cyclone affected the metropolitan area of Lisbon and caused the fall of thousands of trees at the Park of Pena. Dozens of remarkable trees, in size and age, were lost and it is almost certain that some fell at the Tea Hill. These extreme weather event changed a lot the arboretum composition and density of the tree crown cover allowing the opening space for the development of invasive arboreal species such as *Acacia melanoxylon*.



**Figure 11 - Professors from the Instituto Superior de Agronomia – Universidade de Lisboa (Agronomy School) in front of a large eucalyptus.**

**Figure 12 - Root of the previous tree with a Professor as scale.**

In the middle of the 20<sup>th</sup> century, of the 100 original plants only 66 survived and had lost their original vigour.

Following another violent storm that hit Sintra in the 19th of January of 2013 the existing conditions have changed. The once very dense arboreal crown has opened up due to the fact that many trees either fell during the storm or were felled for safety reasons thereafter.



**Figure 13 – After the storm (PSML, 2015).**

This enabled more sunlight to trickle through the canopy into the tea plants.

This led to small increase from 28 very old, around 2 meters high, specimens (recorded in 2009 and in 2015) and 5 juvenile plants.

A morphological study was carried out for the 28 specimens of *Camellia sinensis* that survived from the original plantation (dated from 1883) based on a field survey with the following characters: trunk diameter, the length of 10 healthy-look leaves and the measurement of floral components (averaged from one to three flowers). However, at the time of the field study, some specimens were delayed in blossom season and do not presented flowers. These survey aim to allow the identification of the existing *Camellia sinensis* cultivars.

The growth rate, based on trunk diameter bigger than 10mm (Table 1), revealed that it is very slow, around 0,45mm per year. One possible reason for this result is that this plantation was used to tea production, where the plants were commonly subjected to severe pruning (Figure 15).

**Table 1 - Loadings of the 28 specimens of *Camellia sinensis* from the Tea Hill plantation. Trunk diameters and respective growth rate are given for each specimen.**

	<i>ID Code</i>	<i>Trunk diameter (mm)</i>								<i>Trunk diameter average (mm)</i>	<i>Growth rate (mm/year)</i>
1	29552	170								170,00	1,29
2	29633	60	65	45	60					57,50	0,44
3	29248	70	20	30	40	30	20			35,00	0,27
4	29603	55	30	20	20	20	20			27,50	0,21
5	28943	20	20	20						20,00	0,15
6	29585	80	30	30						46,67	0,35
7	29525	125	50	40	40	35				58,00	0,44
8	29591	70								70,00	0,53
9	54827	20	30							25,00	0,19
10	54828	45								45,00	0,34
11	54829	65								65,00	0,49
12	29622	240								240,00	1,82
13	29595	100								100,00	0,76
14	29621	30	30	25	20	20	20	20	20	23,13	0,18
15	29623	70								70,00	0,53
16	54808	30	30	20	20					25,00	0,19
17	54809	80								80,00	0,61
18	54806	30	30	20	30	50	30	30		31,43	0,24

19	29583	110					110,00	0,83
20	54810	20	20	20	10		17,50	0,13
21	58696	30	20	10			20,00	0,15
22	58697	70					70,00	0,53
23	29634	50	95	25			56,67	0,43
24	58698	40					40,00	0,30
25	58699	30	20	20			23,33	0,18
26	58700	30					30,00	0,23
27	29618	30					30,00	0,23
28	29592	70	100	65			78,33	0,59

**Table 2 - Loadings of the 28 specimens of *Camellia sinensis* from the Tea Hill plantation. Healthy-look leaves length and flowers diameter are given for each specimen.**

	ID Code	Leaves length (cm)					Average (cm)	Flowers diameter (cm)			Average (cm)
1	29552	7,5	6,6	6,8	7,5	7,1	7,1	-	-	-	-
2	29633	5,9	5,6	6,5	6,2	5,9	6,02	2,5	-	-	2,50
3	29248	8,0	7,7	7,3	7,7	8,1	7,76	-	-	-	-
4	29603	9,8	9,9	7,8	8,4	8,2	8,82	3	-	-	3,00
5	28943	8,8	8,9	8,5	8,7	9,0	8,78	2	-	-	2,00
6	29585	7,5	7,3	7,5	8,2	7,7	7,64	2,5	-	-	2,50
7	29525	9,5	8,6	8,7	8,8	8,5	8,82	2,0	-	-	2,00
8	29591	8,4	9,3	8,5	8,2	8,4	8,56	2,3	2,3	2,8	2,47
9	54827	10,2	8,5	8,7	8,3	9,2	8,98	3,0	-	-	3,00
10	54828	8,5	10,1	9,6	10,0	9,8	9,6	2,0	-	-	2,00
11	54829	7,4	7,2	6,4	6,9	7,0	6,98	-	-	-	-
12	29622	8,7	10,4	9,5	8,0	8,4	9	3,0	2,9	-	2,95
13	29595	6,7	6,6	7,0	7,2	7,5	7	2	-	-	2,00
14	29621	7,2	8,2	7,7	6,9	7,8	7,56	-	-	-	-
15	29623	7,2	8,5	7,4	8,1	7,2	7,68	3	-	-	3,00
16	54808	6,3	6,0	7,9	6,4	7,5	6,72	-	-	-	-
17	54809	6,3	7,4	6,5	6,3	7,4	6,78	2	-	-	2,00
18	54806	7,1	7,7	7	8,2	7,6	7,52	3	-	-	3,00
19	29583	7,7	8,0	7,6	7,7	8,1	7,82	2	2	-	2,00
20	54810	6,5	6,7	6,3	7,7	8,0	7,04	2	-	-	2,00
21	58696	8,3	8,0	7,8	8,5	8,3	8,18	-	-	-	-
22	58697	8,2	8,4	8,5	8,7	8,2	8,4	2	-	-	2,00
23	29634	9,3	9,6	9,5	8,1	10,2	9,34	3	3	-	3,00
24	58698	7,6	7,6	6,9	8,0	7,0	7,42	-	-	-	-
25	58699	9,0	8,1	8,4	8,6	9,4	8,7	2,5	-	-	2,50
26	58700	7,9	8,7	7,8	7,0	7,7	7,82	-	-	-	-
27	29618	10,5	8,9	8,3	10,0	9,1	9,36	2,5	-	-	2,50
28	29592	7,6	7,5	7,3	7,7	7,0	7,42	2	-	-	2,00



**Figure 14 - Specimen of *Camellia sinensis* showing severe pruned trunks.**

**Figure 15 - *Camellia sinensis* flower.**



Figure 16 – Measurement of *Camellia sinensis* leaves and flowers.

Based on the survey and according to Gao Jiyin, on his publication “Collected Species of the Genus *Camellia*” were identified 4 cultivars of the specie *Camellia sinensis* var. *sinensis*: *leptophylla*, *parvisepala*, *pubicosta*, *gymnogyna*.

The undergoing restoration project of the Tea Hill includes work on the built structures: the original network of paths (granite irregular pavements and associated granite walls), and the traditional water supply network including the decorative ponds.



Figure 17 – Tea Hill Master Plan (PSML, 2015).

Figure 18 - Granite boulders (PSML, 2015).

Figure 19 - Path (PSML, 2015).





To recreate the original ambience of these gardens, after a historical, bibliographic, iconographic, cartographic and fotografographic research, the restoration project of the tea Hill was based on illustrations created in the 13th and 14th century by Cantonese painters. These images shows the different steps in the cultivation and production of tea in China. The illustrations were collected in the first third of the 18th century and preserved at the *Bibliothèque Nationale* in Paris. These collection of illustrations were published in 2002 by the *bibliothèque de l'Image* in “*Le Voyage du thé, Album Chinois du XVIIIe Siècle*”.

The original *Camellia sinensis* specimens grew old at the south slop of the hill, under ideal conditions: high humidity, shelter from the northern and salty wind that comes from the seashore, plentiful sunlight and a fertile acidic soil overflowing with nutrients. The conditions are very similar to those described in the aforementioned book which served as baseline reference for this project.

The following image shows how the planting was carried out by the peasants. They are carrying bamboo baskets with the tools used to plant tea. The plants use to be planted in uninterrupted lines on the south-facing slopes in the costal provinces near Fujian and Zhejiang. The planting was also done inside the fractures of the rocks, creating very dramatic sceneries, as the romantic



landscape was require to be. The Tea Hill has exactly this kind of ambience.

**Figure 20 and 21- Tea planting, depicted by Cantonese painters.**

**Figure 22 - Source of water, depicted by Cantonese painters.**

Also key in the development of camellias is the proximity to an abundant source of water, as this species is particularly needy in this regard. This presence of water is clearly represented in the next image, were we can see a waterfall tumbling out of the fractures in the rocks. In much a similar way water has a great artificial presence in the Tea Hill through man-made cascades and ponds.



**Figure 23 and 24 - Ponds and a cascade at the Tea Hill (PSML, 2015).**

The composition in the image below is very typical of Chinese Landscapes. Dramatic features like trunks driven perpendicularly into the rock are meant to be part of the romantic composition, very in vogue in the 19<sup>th</sup> century.

**Figure 25 – Trunks drive into the rock (PSML, 2015).**

**Figure 26 - Source of water, depicted by Cantonese painters.**



The travellers in the image with “their postures and gestures underscore the allusions of the painting, whose subject is as much the contemplation of nature, via a backdrop of misty mountaintops fading into the distance, as it is the observation of the tea shrubs and pine trees which punctuate the foreground”(Frères 2002).

The presence of the mist is a constant in the Park of Pena and the steepness paths in the Tea Hill allow the visitors to enjoy the clouds approaching to the top of the hill, creating a even more romantic scenery.

Through these evidences and parallels with the Chinese tea landscapes one can easily understand why this hill was chosen to be the first site to experiment the tea plantation in mainland Portugal, in the context of the creating a 19<sup>th</sup> century romantic landscape.

The next step in this work is the implementation of the restoration project, including the planting of hundreds of tea plants following the Chinese traditional methods and the style and spirit of the characteristic Chinese tea landscapes.

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