

The Palms of Monserrate, Sintra, Portugal

GERALD LUCKHURST
Landscape Architect
Avenida 25 de Abril, 56,
Galamares,
2710-246 Sintra
Portugal
gerald.luckhurst@gmail.com



1. Dome of Monserrate seen behind *Trachycarpus fortunei* and *Phoenix canariensis*.

The garden of Monserrate in Portugal contains a wealth of fine trees planted mostly in the second half of the nineteenth century including giant Araucarias, Kauri pines, Banyans and *Metrosideros*. The collection of palms is particularly rich and has great historical significance since the palms at Monserrate were among the first specimens of their kind planted in the open air in Europe. Today there are some seventy or more species of palm growing at Monserrate, twenty-four of them representing historic plantings (Fig. 1).

Sintra, near Lisbon, Portugal, enjoys one of the mildest climates in Europe, comparable only to the southern-most coasts of Spain and Italy and some islands of the Mediterranean. However, its position at the western-most point of continental Europe gives it a wholly Atlantic outlook with abundant winter rains and cool, misty summers. Winter minimum temperatures on the northern slopes of the Serra de Sintra are warmer than those of surrounding areas, with frost-free conditions that allow plants classified for USDA Zone 10b to be grown. The soils are composed of decayed granite and abundant organic material.

Monserrate is an historic garden founded in the late 18th century by Gerard de Visme, a wealthy English merchant who had made his fortune in trade with Brazil. He built a neo-gothic house that quickly fell to ruin during the Napoleonic invasions and ensuing civil war in Portugal (1807–1834). Lord Byron saw the ruined house and garden in 1809 and wrote about them in *Childe Harold's Pilgrimage*. Such was the effect of this poet's fame that the gardens instantly became an obligatory destination visited by all Grand Tourists of the nineteenth century.

One such wealthy traveller was the young Francis Cook returning from a tour of Greece, Turkey, Egypt, Italy and the Iberian Peninsula. Arriving in Lisbon he had letters of introduction to his father's trading partners and was entertained in Sintra by English merchants who had their summer houses there. He met and fell in love with Emily Lucas, daughter of one of these families and tradition has it that they discovered the ruins of Monserrate on their honeymoon in August 1841.

Cook was the second son of William Cook, one of Britain's largest traders in all kinds of silk, linen, woolen and cotton goods. When his elder brother Francis died in 1852 the family firm became Cook, Son & Co. He then decided it was time to begin making his garden in Portugal and planted the first Araucarias at Monserrate in the same year. Re-building of the house was begun in 1856 and completed by 1860.

In 1869 he inherited a fortune of two million pounds.

Francis Cook was a collector. All things rare and wonderful fascinated him. His garden contained Etruscan sarcophagi and Mughal

arches, Roman and Renaissance sculpture, Chinese urns and Iznik tiles. The house, built on de Visme's gothic castle walls, was decorated in "Moorish style" with an amalgam of Indian and Venetian and Florentine Renaissance details – the palace of a Nabob in the words of one visitor. It contained works of art in every room: paintings, sculpture, arms, books, textiles, rugs, even stuffed birds and tiger-skin rugs. Later he became Sir Francis Cook, Bt. and Visconde de Monserrate, renowned as the greatest art collector of his age, guided by Sir J. C. Robinson, keeper of pictures to Queen Victoria, and founder of the Victoria & Albert Museum, London.

Naturally he began to fill the garden with exotic and expensive plants. This was the age of great Victorian glasshouses filled with the treasures of uncharted lands – Brazil, Australia, New Zealand, South Africa, China and Japan. Cook's ambition was to make a garden at Monserrate that would rival the greatest botanical collections of Europe. In England he lived on Richmond Hill, close to the epicenter of Victorian plant exploration, the Royal Botanic Gardens at Kew, where he maintained a close relationship with the directors William and Joseph Hooker. At Monserrate the garden was to contain a greater variety of plants than any other garden in Europe – except Kew!

All of this was to be grown in the open air. "Imagine," said Dr. David Moore (director of Glasnevin botanic garden) in 1867, "imagine a piece of ground a thousand times the size of the palm house at Kew," wholly dedicated to the culture of exotic plants.

It was David Moore that gave us the first record of some of the successful plantations of palms from when the garden was first established. These were listed as *Areca sapida*, *Chamaerops martiana*, *Chamaerops fortunei*, *Seaforthia elegans*, *Latania borbonica* and *Phoenix dactylifera*. Here we are confronted with a problem that dogs all those interested in the history of Victorian horticulture – the complexity of synonymy and inaccurate botanical nomenclature, even when used by the most eminent botanists. This is not surprising when one considers the remote origins of the palms and the difficulty that scientists had in procuring flowering specimens for taxonomic examination. The sheer size of the inflorescences made even making herbarium sheets a daunting prospect.

Throughout this article the names of plants are referred to as cited by original authors.



2. Palms growing between two giant Araucarias, including *Livistona australis* and *L. chinensis*, *Washingtonia robusta*, *Archontophoenix cunninghamiana* and *Phoenix canariensis*.

Please refer to Table 1 for modern accepted names in accordance with the Kew World Check List of Selected Plant Families (<http://apps.kew.org/wcsp/home.do>). There are however situations in which the treatment of horticultural names does not agree with botanical synonymy. An example would be

Latania borbonica Hort. as opposed to *Latania borbonica* Lam. The first, as undoubtedly intended by Dr. Moore in 1867 is equivalent to *Livistona chinensis* (Jacq.) R.Br. ex Mart., whereas the latter is botanically considered synonymous with *Latania lontaroides* (Gaertn.) H.E. Moore.



3. Monserrate: main entrance to the house with *Archontophoenix cunninghamiana*.

Garden making in Portugal in the mid-nineteenth century was dominated by two aristocratic figures. Foremost was Ferdinand Saxe-Coburg and Gotha, king-consort of Queen Maria II and regent during the infancy of his sons Pedro V and Luis I. He was a cousin of Queen Victoria's husband Albert and nephew of Leopold of Belgium. In Portugal he became known as Dom Fernando II. Secondly there was the Duke of Palmella, Dom Pedro de Sousa Holstein, an important figure in the long period of civil war, protector of Queen Maria, and briefly prime minister of Portugal.

Dom Fernando II made a number of gardens in Portugal, the most important being that surrounding his castellated palace of Pena on top of the Serra de Sintra, but also others in Lisbon at the Palace of Necessidades and in royal residences such as Alfeite on the southern margin of the Tagus River and at Mafra, north of Sintra. He is famous amongst palm enthusiasts for the fantastic *Jubaea* that he planted outside at Necessidades in 1858, but in fact the vast majority of his palms in this garden were grown in his wonderful domed palm house built in 1857. Before the *Jubaea*, only *Cocos flexuosa* and *Phoenix dactylifera* were

to be found out in the park. The greenhouse may be visited today; unfortunately it is totally bereft of plants, and sadly the *Jubaea* no longer exists.

The Duke of Palmella had in his service two exceedingly competent plantmen, the botanist Friedrich Welwitsch and the gardener Jacob Weiss. Together they made a series of fantastic gardens on the Duke's estates, the most important of which, at Lumiar in Lisbon, is today a public park. The first palms were brought to Lumiar in 1856 and were later planted in the open air. These were *Jubaea spectabilis*, *Chamaerops ghiesbreghtii*, *Chamaerops excelsa*, *Livistona sinensis*, *Phoenix leonensis* (*P. spinosa*), *Copernicia* sp. from Bahia, Brazil, *Rhapis* sp. aff. *flabelliformis*, *Rhapis aspera*, *Chamaerops tomentosa*; *Seaforthia elegans*; *Sabal umbraculifera*, and of course, *Phoenix dactylifera* and *Chamaerops humilis*. *Livistona australis* was also planted in this garden, though somewhat later.

So it was against this aristocratic background that Francis Cook began to plant his garden at Monserrate. His palms soon grew to impressive dimensions as recorded by another botanical



4. Young *Archontophoenix cunninghamiana* growing next to *Nolina longifolia*.

visitor, Professor T. C. Archer from Edinburgh, who wrote up his *Botanical Notes on the Garden of Monserrate, Portugal* in 1870. Archer considered that Monserrate surpassed even Kew since “the whole of the plants at Monserrat have no other covering than the azure sky above.”

On the western side of the upper lawn he saw “a large grove of palms, on the borders of which are magnificent specimens of *Cycas revoluta* and *Cycas circinalis*, the former with two immense cones of ripe fruit. The palms are chiefly *Areca sapida*, *Latania borbonica*,

Seaforthia Elegans, *Chamærops Fortunei* and *Martiana*, each about forty-five feet high, *Corypha australis*, *Sabal Blackburniana*, and the date palm.”

Forty-five feet high, or nearly fourteen meters is a tremendous height for any garden palm in Europe at this time. The palm house at Kew is 66 feet (20 m) at its highest, but outside what was there to rival these dimensions? As a direct comparison the very first *Trachycarpus fortunei* planted in the palm house at Kew had reached only 28 feet by 1860. Prince Albert’s specimen planted out at Osborne House (Isle of Wight)

Table 1. Historic Palm Collection at Monserrate.

Dates refer to Literature Cited. 1867 = D. Moore. 1870 = T.C. Archer

| Species | Date | Most likely match | Currently Accepted Name (World Checklist, Kew) |
|----------------------------------|------|--|---|
| <i>Areca sapida</i> | 1867 | <i>Areca sapida</i> Sol. ex G. Forst. | <i>Rhopalostylis sapida</i> (Sol. ex G. Forst.) H. Wendl. & Drude |
| <i>Brahea Roezlii</i> | 1929 | <i>Brahea roezlii</i> Linden | <i>Brahea armata</i> S. Watson |
| <i>Butia capitata</i> | 1946 | <i>Butia capitata</i> (Mart.) Becc. | <i>Butia capitata</i> (Mart.) Becc. |
| <i>Caryota urens</i> | 1885 | <i>Caryota urens</i> L. | <i>Caryota urens</i> L. |
| <i>Chamaedorea elatior</i> | 1929 | <i>Chamaedorea elatior</i> hort. ex H. Wendl. | <i>Chamaedorea pochutlensis</i> Liebm. in Mart. |
| <i>Chamaerops Fortunei</i> | 1867 | <i>Chamaerops fortunei</i> Hook. | <i>Trachycarpus fortunei</i> (Hook.) H. Wendl. |
| <i>Chamaerops humilis</i> | 1946 | <i>Chamaerops humilis</i> L. | <i>Chamaerops humilis</i> L. |
| <i>Chamaerops martiana</i> | 1867 | <i>Chamaerops martiana</i> Wall. ex Mart. | <i>Trachycarpus martianus</i> (Wall. ex Mart.) H. Wendl. |
| <i>Cocos plumosa</i> | 1885 | <i>Cocos plumosa</i> Hook. f. | <i>Syagrus romanzoffiana</i> (Cham.) Glassman |
| <i>Cocos Weddelliana</i> | 1885 | <i>Cocos Weddelliana</i> H. Wendl. | <i>Lytocaryum weddellianum</i> (H. Wendl.) Toledo |
| <i>Corypha australis</i> | 1870 | <i>Corypha australis</i> R. Br. | <i>Livistona australis</i> (R. Br.) Mart. |
| <i>Diplothemium arenarium</i> | 1946 | <i>Diplothemium arenarium</i> (Gomes) Vasc. & Franco | <i>Allagoptera arenaria</i> (Gomes) Kuntze |
| <i>Euterpe edulis</i> | 1885 | <i>Euterpe edulis</i> Mart. | <i>Euterpe edulis</i> Mart. |
| <i>Howea (Kentia) Belmoreana</i> | 1885 | <i>Kentia belmoreana</i> C. Moore & F. Muell. | <i>Howea belmoreana</i> (C. Moore & F. Muell.) Becc. |
| <i>Howea Forsteriana</i> | 1885 | <i>Howea Forsteriana</i> (F. Muell.) Becc. | <i>Howea forsteriana</i> (F. Muell.) Becc. |
| <i>Jubaea spectabilis</i> | 1923 | <i>Jubaea spectabilis</i> Kunth in HBK | <i>Jubaea chilensis</i> (Molina) Baill. |
| <i>Latania borbonica</i> | 1867 | <i>Latania borbonica</i> hort., non Lam. | <i>Livistona chinensis</i> (Jacq.) R. Br. |
| <i>Latania lontaroides</i> | 1923 | <i>Latania lontaroides</i> (Gaertn.) H.E. Moore | <i>Latania lontaroides</i> (Gaertn.) H.E. Moore |

Table 1, continued.

| | | | |
|--|------|---|---|
| <i>Livistona Hoogendorpii</i> | 1885 | <i>Livistona Hoogendorpii</i> Teijsm. & Binn. ex Miq. | <i>Livistona saribus</i> (Lour.) Merr. ex A. Chev. |
| <i>Phoenix sylvestris</i> | 1891 | <i>Phoenix sylvestris</i> (L.) Roxb. | <i>Phoenix sylvestris</i> (L.) Roxb. |
| <i>Phoenix dactylifera</i> | 1867 | <i>Phoenix dactylifera</i> L. | <i>Phoenix dactylifera</i> L. |
| <i>Phoenix loureirii</i> | 1946 | (misidentification) | <i>Phoenix roebelenii</i> O'Brien |
| <i>Phoenix reclinata</i> | 1885 | <i>Phoenix reclinata</i> Jacq. | <i>Phoenix reclinata</i> Jacq. |
| <i>Phoenix rupicola</i> | 1885 | <i>Phoenix rupicola</i> T. Anderson | <i>Phoenix rupicola</i> T. Anderson |
| <i>Phoenix tenuis qui sont des P. Canariensis</i> | 1891 | <i>Phoenix tenuis</i> Verschaff. | <i>Phoenix canariensis</i> Chabaud |
| <i>Pritchardia filifera</i> | 1891 | <i>Pritchardia filifera</i> Linden ex André | <i>Washingtonia filifera</i> (Linden ex André) H. Wendl. ex de Bary |
| <i>Ptychosperma Alexandrae</i> (<i>Archontophoenix Alexandrae</i>) | 1885 | <i>Archontophoenix Alexandrae</i> (F. Muell.) H. Wendl. & Drude | <i>Archontophoenix alexandrae</i> (F. Muell.) H. Wendl. & Drude |
| <i>Rhapis excelsa</i> | 1946 | <i>Rhapis excelsa</i> (Thunb.) Henry | <i>Rhapis excelsa</i> (Thunb.) Henry |
| <i>Rhopalostylis (Areca) Baueri</i> | 1885 | <i>Areca baueri</i> Hook.f. | <i>Rhopalostylis baueri</i> (Hook. f.) H. Wendl. & Drude |
| <i>Sabal Blackburniana</i> | 1870 | <i>Sabal blackburniana</i> Glazebrook | <i>Sabal palmetto</i> (Walter) Lodd. ex Schult. & Schult.f. |
| <i>Seaforthia elegans</i> | 1867 | <i>Seaforthia elegans</i> R. Br. | <i>Ptychosperma elegans</i> (R. Br.) Blume |
| <i>Seafortia elegans</i> | 1867 | <i>Seaforthia elegans</i> Hook. | <i>Archontophoenix cunninghamiana</i> H. Wendl. & Drude |
| <i>Trithrinax brasiliensis</i> | 1929 | <i>Trithrinax brasiliensis</i> Mart. | <i>Trithrinax brasiliensis</i> Mart. |
| <i>Washingtonia robusta</i> | 1929 | <i>Washingtonia robusta</i> H. Wendl. | <i>Washingtonia robusta</i> H. Wendl. |

and thought to be the largest of its species grown without shelter in Europe, was at this time only ten feet tall.

Archer tells the story of how Cook's gardener had transplanted a giant date palm. "It is supposed to be some centuries old, and formerly grew at Cascaes, a place twelve miles distant, whence it was removed by Mr Burt, the gardener at Montserrat, across the intervening Serra with great difficulty. Its leaves were tied up, and its roots protected, and twenty-four oxen worked for a whole week to bring it to the paradise in which it now so proudly flourishes ... The stem of this prince of palms is seven feet six inches in girth, and the height not less than thirty feet, — the beautiful crown of leaves being at least ten feet more."

The first *Areca sapida* (*Rhopalostylis sapida*) flowered in the palm house at Kew in 1859. The following year the French *Revue Horticole* was appealing to "la libéralité anglaise" so that seeds might be supplied to southern gardens for experimentation with outdoor culture. By 1861 Messrs. Veitch & Son had the plant on sale in London and the plant was "tolerably well known in gardens." On the French Riviera it was not until 1882 that this palm reached flowering maturity.

Latania borbonica is not what it seems. This name was used by Victorian gardeners for *Livistona chinensis* (Jacq.) R. Br. in the mistaken belief that this Chinese palm originated from the French Island of Réunion (Île Bourbon). Perhaps the first open air planting of this species was at Hyères in 1846, on the French Riviera some ten years before it was cultivated in Portugal.

Seaforthia elegans is another problematic gardeners' synonym, almost certainly what is intended is *Archontophoenix cunninghamiana* H. Wendl. & Drude. Some descriptions of Monserrate list both *Seaforthia elegans* and *Ptychosperma cunninghamiana* as growing side by side. So we should perhaps consider the possibility that *Ptychosperma elegans* (R. Br.) Blume was also cultivated at Monserrate. However there is none growing there today and the *Archontophoenix* is still seen throughout the gardens (Figs. 3 & 4). Not a particularly hardy palm, what probably prompted the experimentation with *Archontophoenix* at this early date was its ready availability by seed imported from Sydney. *Archontophoenix cunninghamiana* is very sensitive to cold and although widely planted

on the French Riviera in the nineteenth century it often succumbed to cold winters without reaching impressive dimensions.

Corypha australis, in this context should be interpreted as *Livistona australis* (R. Br.) Mart. Seeds placed casually as drainage material in the bottom of Wardian cases sent by Cunningham were found to have germinated on arrival at Kew in 1824. Conrad Loddiges then used this technique to import large numbers of seeds and the palm became quickly established in the greenhouses of Europe. This palm was among the first contenders for acclimatisation since it is the southernmost palm occurring on the Australian continent. Small plants were growing in the open at the Naples Botanic garden at by 1867, and it was included in a list of palms that were "reasonably common" at Nice in 1869.

Sabal blackburniana was first cultivated under glass in Europe by a Mr. Blackburn who had his plant from Lord Petre in 1737. It was probably grown from seeds collected in Georgia (USA) by William Bartram. A multiplicity of other names makes it difficult to determine when this palm was first cultivated outdoors. In fact, the earliest records use a wholly erroneous designation: *Corypha unbraculifera*. Famously large specimens grown under glass are frequently referred to by this name. Messrs. Huber of Hyères on the French Riviera planted out a very young specimen of *Sabal blackburniana* in the summer of 1864 and it was successfully overwintered.

Encouraged by these early successes: "Mr. Cook ... has lately experimented with Palms that he was chary of trying at first; a list of those that are healthy will, therefore, be valuable. They are *Phœnix reclinata*, *Ptychosperma Alexandræ* (*Archontophoenix alexandrae*), *Cocos plumosa* and *Weddelliana*, *Howea* (*Kentia*) *Belmoreana*, and *Rhopalostylis* (*Areca*) *Baueri*." This list appeared in 1885 written by C.A.M. Carmichael in a long two-part article for *The Gardeners' Chronicle*. By then *Seaforthia elegans*, *Livistonia borbonica* and *Corypha australis* were the tallest palms in the garden.

In another part of the garden known as "Mexico" Carmichael found that "Aloes and Yuccas of every kind abound, and monotony is avoided by inserting Palms." He gave the following list: "*Areca* (*Rhopalostylis*) *sapida*, one leaf of which measured 12 feet; two wide-spread Date Palms, the circumference of the branches of one was 39 paces; *Phœnix rupicola*,

Caryota urens, *Livistona Hoogendorpii*, *Howea Forsteriana*, and *Euterpe edulis* were among the most prominent or worthy of notice for being grown in the open."

Amongst this list are a number of palms that even today's enthusiasts of hardy palms would be surprised to encounter. How many European gardens today are growing *Lytocaryum weddellianum* (H.Wendl.) Toledo or *Euterpe edulis* Mart. in the open? The *Euterpe* and *Cocos insignis* were still thriving in 1910 as described by the French forester Léon Parde.

The warm growing conditions found at Monserrate are indicated by the presence of such delicate palms as *Howea belmoreana*, rated zones 10 and 11 by Robert Lee Riffle and Paul Craft in their *Encyclopedia* and *Archontophoenix alexandrae* rated 10b and 11. Both species are growing today at Monserrate. Recently planted *Caryota urens* (adapted only to zones 10b and 11 and marginal in 10a) has come through the difficult winter of 2009/2010 and is making new growth at the time of writing (March 2010).

Sir Francis Cook died in 1901, appropriately at the close of the Victorian era. He was succeeded by his son Frederick, who was little interested in horticultural affairs but who had the good sense to entrust the garden to Henri Navel, trained at the Ecole de Versailles and at Kew and who was later appointed head gardener at the Lisbon botanic garden. The gardens were visited during his tenure, as mentioned above, by Léon Parde. His extensive botanical descriptions indicate however that the palm collection at this time was essentially that planted by Sir Francis.

Only when the third baronet, Sir Herbert Cook, appointed Walter Oates as his head gardener was the collection to see new development. Walter Oates wrote *Monserrate: A Short Guide to the Gardens* in 1923, shortly after he had arrived as new head gardener. He had been working previously on the Italian Riviera and was well acquainted with hardy palms.

Oates remained at Monserrate for the rest of the decade and wrote a well-illustrated article for the *Gardeners' Chronicle* in 1929 in which he lists many plants. He includes a list of palms: "Palms are very numerous, and mention of only a few of the best must suffice: *Cocos flexuosa*, *C. romanzoffianum*, *Washingtonia robusta*, the tallest palm in the garden, about 70 feet high; *Kentia belmoreana*, *K.*

forsteriana, with trunks 25 ft. high; *Phoenix canariensis*, *P. dactylifera*, *P. reclinata*, with seven well-furnished trunks from one root; *Brahea roezlii*, *Areca baueri*, *A. sapida*, *Jubaea spectabilis*, *Seaforthia elegans*, *Sabal blackburniana* and *Sabal umbraculifera*." At other points in the article he also mentions *Trithrinax brasiliensis*, and *Chamaedorea elatior* plants not mentioned in any previous description of the garden and presumably from his own introduction.

Sir Herbert died in 1939. Following the Second World War, the Monserrate estate was sold by the fourth baronet, who shared his name with his great grandfather, Sir Francis Cook. The garden eventually passed into the hands of the Portuguese state, managed by the Forest Service. The gardens continued as a great tourist attraction into the 1960s but were better known for their rhododendrons and camellias than the exotic plants of the Victorian era. The palms continued to grow, but slowly many were lost either through old age or more significantly through competition from invasive trees species such as *Acacia melanoxylon* and *Pittosporum undulatum*.

Following the 1974 Portuguese Revolution circumstances had changed so radically that it

Visiting Gardens

Monserrate

Parque de Monserrate
2710-405 Sintra, Portugal
Tel: 21 923 73 00
Fax: 21 923 73 50

Parques de Sintra – Monte da Lua
E-mail: info@parquesdesintra.pt
<http://www.parquesdesintra.pt/>

Palácio das Necessidades

Tapada das Necessidades
Rua Capitão Afonso Pala
Lisboa 1350-215
<http://www.mne.gov.pt/mne/en/ministerio/palacio/>

Lumiar (Museu Nacional do Trajo e da Moda)

Parque Monteiro-Mor
Largo Júlio Castilho
1600-483 Lisboa
Tel: (+351) 21 759 03 18
Fax: (+351) 21 759 12 24
<http://www.museudotraje-ipmuseus.pt>

was impossible to maintain the garden. Staff were reduced to three people: one collecting tickets on the gate, one sweeping up around the house and the last of the old gardeners, José Luis, who faced with the forests of invasive plants that occupied the garden, retreated to the broken glasshouse and nursery.

In 1987 a group of young Canadian landscape architects and horticulturists from the Royal Botanical Gardens of Hamilton, Ontario began to work on the restoration of the gardens. This was the beginning of a long and difficult process that has yet to be completed. Today the gardens are managed by a state-owned, but self-funding organization called the Parques de Sintra – Monte da Lua. There is a comprehensive restoration project underway of both house and gardens, co-ordinated by Prof. Antonio Lamas, the organization's president.

And the palms? Twenty-four species have managed to survive from the original plantings, some of them centenarian and of monumental dimensions. In addition, clearing work and reconstruction have enabled a program of replanting of the garden's botanical heritage. This includes the palm collection which today includes some 70 different taxa. A new head gardener has been appointed, Tim Stretton, who trained at Kew. One hopes the day will soon be here when Monserrate will once again resemble the palm house of Kew. But under the azure sky above!

LITERATURE CITED

ARCHER, T.C. 1870. Botanical notes on the garden of Montserrat, Portugal. Transactions and Proceedings of the Botanical Society of Edinburgh 10: 414–420.

BEAN, W.J. 1925. Trees and Shrubs Hardy in the British Isles. John Murray, London.

BERGMAN, E. 1890. Palmiers en Portugal, *Jubaea spectabilis*. La Nature: revue des sciences et de leurs applications aux arts et à l'industrie 888: 40–42.

COOK, H. AND W. OATES. 1923. Monserrate, Cintra, Portugal: a Short Guide to the Gardens. Privately published.

CARMICHAEL, C. 1885. Montserrat. Gardeners' Chronicle 23: 389–91, 426–427.

GOEZE, E. 1875. Jardins notaveis em Portugal, Lumiar. Jornal de Horticultura Practica 7: 230–233.

GOEZE, E. 1876. Jardins notaveis em Portugal, Palacio das Necessidades. Jornal de Horticultura Practica 6: 43.

GOMES, A.G. 1855. Da Aclimação em Portugal do *Cycas revoluta*, uma das árvores do Sagu. Flora e Pomona 2: 108.

HARDY, A. 1864. Note sur la situation des derniers plantations d'espèces ligneuses exotiques au Jardin d'Acclimatation a Alger. Bulletin de la Société d'horticulture du département de Seine-et-Oise. p. 24.

LEPELLETIER, M. 1860. Floraison de l'*Areca sapida* dans la grande serre de Kew. Revue Horticole 1860: 18, 19.

LUCKHURST, G.L. 1988. Sintra: a Landscape with Villas. Edições Inapa, Lisbon.

MOORE, D. 1870. Botanical and horticultural notes, made on a journey through parts of the south of France, Spain and Portugal during the autumn of 1867. Journal of the Royal Dublin Society 5: 241–255.

OATES, W. 1929. Monserrate. Gardeners' Chronicle 86: 90–93.

PARDÉ, L. 1910. Excursion dendrologique au Portugal et en Espagne. Bulletin de la Société Dendrologique de France 17: 118.

SAINT VICTOR, L.G., 1891. Portugal: Souvenirs et Impressions de Voyage. Librairie Blériot, Paris.

VASCONCELLOS, J. & J.A. FRANCO 1946. As palmeiras de Lisboa e arredores. Portugaliae Acta Biologicae 2–4: 289–245.