Medical Heritage of the National Palace of Mafra

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Edited by

Maria do Sameiro Barroso,
Christopher J. Duffin
and Germano de Sousa

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INTRODUCTION

CHRISTOPHER J. DUFFIN
AND MARIA DO SAMEIRO BARROSO

The landscape of Portuguese medical history, relatively poorly known outside the country, is peppered with significant initiatives, events and characters. Portugal boasts, for example, one of the most ancient medical faculties, the University of Coimbra. This was established in 1290 by King Dinis (1261-1325) in Lisbon, together with its Department of Medicine, but then moved to Coimbra, some 200 km away in 1308. Following some movement between Coimbra and Lisbon over the next two centuries, it eventually settled at the Alcaçova Palace in Coimbra in 1537, during the reign of King John III (1502-1557).

During the fifteenth and sixteenth centuries, Portugal was a leading maritime nation, with an intense and successful programme of exploration. One of the most outward-looking and adventurous countries during the Age of Discovery, its methodical programme of exploration and coastal mapping began under the direction and sponsorship of Henry the Navigator (1394-1460). Voyages in 1419 explored the west coast of Africa, while in 1498 Vasco da Gama (died 1524) opened a route around the Cape of Good Hope to India, and trade routes were established in relatively short order to the east coast of Africa, Madagascar, modern day Malaysia and even Japan. To the west, the Portuguese were the first to discover Brazil (in 1500).

Many missionaries were despatched to the newly accessioned territories, particularly by members of the Society of Jesus (Jesuits), established in 1540. Francis Xavier (1506-1522), for example, travelled through Goa, India, South-East Asia, Japan and China. Roman Catholic churches were established and some of the missionaries with specialist training brought new medical treatments to the local inhabitants. This was not a one-way street, however. A flood of novel medicaments began to be returned to Portuguese ports via the newly established trade routes, along with spices, minerals and other exotic goods. Portugal rapidly developed a virtual monopoly on the trade and importation of such goods.

A number of apothecaries and medical men were well placed either in the newly discovered territories or in the ports back home, to be able to intercept and examine these new materials and to report on their origins, application and supposed efficacy. Garcia da Orta (1501?-1568), for example, adopted an experimental approach to assessing the therapeutic qualities of local herbal and other materials in Goa, publishing his findings in 1563 as *Colóquios dos simples e drogas he cousas medicinais da Índia* ("Conversations on the simples, drugs and materia medica of India"), effectively establishing himself as a pioneer of tropical medicine.

The Portuguese empire declined during the early part of the seventeenth century, but its fortunes began to rise following the Restoration War (1640-1668), at the conclusion of which Portugal broke from their union with Spain and a new dynasty of Portuguese kings was established, beginning with the Duke of Braganza (1604-1656) being recognised as 'John the Restorer' (King John IV; reigned 1640-1656). Following the death of John IV and the relatively short reigns of Afonso VI and Pedro II, John V succeeded to the throne, reigning for the first half of the eighteenth century.

Also known as "The Magnificent", "The Magnanimous" and "The Portuguese Sun King" John V's reign was marked by a time of increasing prosperity and prestige. Gold flooded into the country from the South American Portuguese colony states of Brazil and Maranhão. The coffers of the king were replenished by the "royal fifth" (*quinto real*), an ancient tax which saw 20% of, amongst other things, precious metals extracted from mining operations, becoming the property of the monarch. John V used these tax revenues to fund the establishment of new embassies in the various countries of Europe, to build up the royal collections, and to embark on grandiose architectural projects, including the building of the Royal Palace of Mafra (now National Palace of Mafra).

This magnificent building, combining Baroque and Italianate Neo-classical architectural styles, is built from Lioz stone, a popular ivory-coloured, microcrystalline, fossiliferous ornamental limestone of Late Cretaceous age obtained from just outside Lisbon. The building itself is enormous (the façade is 220 m long) and houses the Royal Palace, a Basilica, a Monastery and a Rococo Library. The importance of the site, including the associated Cerco Garden and Hunting Park (*Tapada*), has recently (17 July 2019) been recognised by its being designated a UNESCO World Heritage Site. The nomination document in respect of this recognition states that Mafra palace is "one of the most exceptional examples of European baroque architecture and art, in a Roman neo-

classicist matrix, reflecting the vanguard values of the human creative genius and constituting a significant engineering feat" and that it contains "one of the biggest and best royal libraries covering themes as different as religion to science, including 'banned books'".

Alexandre Herculano (1810-1877), a writer, poet, journalist and historian of Portuguese Romanticism, wrote that:

> "A great building, whatever the purpose its founder might wish to give it, is always and in many ways a history book. Those who seek only one type to gauge the progress or decay of the arts in the epoch of its construction, read only one chapter of this book. The castles, churches and palaces, a triple genre of monuments that enclose the whole architecture of modern Europe, form an immense chronicle, in which there is more history than in the writings of the historians." (Herculano 1898, 6-7)

In this way, the National Palace of Mafra could be considered an open book inviting the reader to engage in a challenging but rewarding journey through history, art and medicine-a compelling and captivating read. In terms of the history of medicine, this open book has seldom been consulted. A few short, minor publications give occasional glimpses into its richness and brilliance. It is hoped that this current book might begin to close this gap in scholarship, and bring research by an international group of scholars, stimulated by the Palace and its contents, to a broader audience.

The concept of this present volume began with an initial interest in the medical heritage of the National Palace of Mafra in 2015. In June of that year, the Department of the History of Medicine of the Portuguese Medical Association, organized a field trip to the National Palace of Mafra. Dr Christopher J. Duffin, who had been invited to Lisbon to give a series of lectures, attended this trip. The visit planted a slow-growing seed and following the visit, Dr^{a} Fernanda Santos and Dr^{a} Teresa Amaral, librarians at the National Palace of Mafra, encouraged more extensive research. In 2017, the Department of the History of Medicine organized a successful symposium, held in a magnificent room of the National Palace of Mafra, and presided over by the Director, Dr Mário Pereira who expressed the wish that the associated research should not be lost after the event. Professor José Manuel Silva, the President of the Portuguese Medical Association at that time, and Dr Miguel Guimaraes (the current President) also supported the idea. Publishing the results of this research became imperative with the initial work having all been in Portuguese. In 2018, Lisbon hosted the 46th Congress of the International Society for the

History of Medicine. The programme included two visits to the National Palace of Mafra with lectures by Professor Germano Sousa and Drª Teresa Amaral further stimulating interest in the project and broadening the range of potential contributors.

Two main themes emerge from the research presented in this volume. The first focuses on the part played by Mafra itself in providing care for its own staff and members of the local community. The second thread depends upon the rich heritage of published volumes held in the Palace's magnificent library.

António Trabulo introduces the reader to the figure of King John V, "The Magnanimous" and examines the background to and motivations for the building of Mafra Palace; both positive and negative aspects of his political views and achievements are considered in this regard. The author then goes on to examine the medical history of the King, from the illness which he suffered in infancy (probably chicken pox) through to his death from haemorrhagic stroke. Details culled from surviving records of the King's treatment and his autopsy report are considered in discussing potential causes of the range of symptoms displayed by John V at different times in his medical history, with syphilis being a prominent causal candidate accounting for a number of them.

When it was originally built, the National Palace of Mafra included a small convent intended to house thirteen Franciscan friars. This number rapidly expanded to 300 and infirmary facilities for the care of sick and dying members of the clergy and the poor were clearly a necessity. **Germano de Sousa** places the Infirmary at Mafra in the broader context of monastic provision from the Middle Ages onward. At the turn of the sixteenth century, for example, the Royal All Saints Hospital served not just the population of Lisbon but also foreign visitors, especially the merchants who arrived in Lisbon from the faraway places where the Portuguese had established trading stations. The author gives insightful glimpses into the medical assistance provided in the treatment of the common diseases experienced at the time. The hospital also received the first syphilitic patients from Espagnola Island in Central America. The account of the Royal Hospital of Goa provides details of the organisation and practice of medical care in Portuguese colonies. De Sousa's overview of Mafra's infirmary and associated nursing care reveals the medieval monastic roots of the hospital.

The hospital at Mafra was supported by a pharmacy or "Botica". While little of the original structure survives to the present day, examination of a number of documents, registers and lists has allowed **Maria do Sameiro do Barroso** to reconstruct some of the history of the

hospital which was built to support the workers during the construction of the Palace of Mafra and of the pharmacy, including its buildings, staffing and some of the more interesting medicaments prescribed at the time.

In a closely related paper, **Joaquim Figueiredo Lima and Maria do Sameiro Barroso**, working initially from two enema syringes held in the Mafra Museum, review the history of clyster syringes and the use of enemas in the light of the Hippocratic model, discussing their (often hazardous) overuse, which persisted right through to the end of the eighteenth century.

Concentrating on the practical aspects of the care given to patients in the Infirmary complex at Mafra, **Isabel Yglesias de Oliveira** considers the various advantages of the floor plan of the building. By consulting the accounts books of the Royal Warehouse of Mafra she is able to unravel the routine dietary provision for the sick, and pharmacy inventories are used to give some information on the preparation of medicines – the medicinal simples grown in the monastery gardens, exotic materials imported from abroad and the equipment used in the preparation of the final drugs. A picture emerges of a well-organised system designed to deliver high quality care to the sick, dying and convalescent patients in an efficient manner, with due attention paid to diet, hygiene, physical comfort and spiritual support.

The 88 m long, 9.5 m wide and 13 m high hall with its impressive barrel-vaulted ceiling and beautifully marbled floor houses the two-storey Rococo library at Mafra and immediately strikes the visitor with a sense of its grandeur. Manuel Caetano de Sousa (1738–1802), the royal architect placed in charge of public works was appointed to oversee its construction, the library opening in 1771. Some 36,000 leather-bound volumes are stored on its wooden shelves and are famously protected from the ravages of insect pests by the resident colony of bats. The cruciform library contains many bibliographical treasures, including items on the Roman Catholic Church's *Index Librorum Prohibitorum* or list of prohibited books, and its coverage spans the whole gamut of human learning, as is clear from the summary of its contents by **Teresa Amaral** in the Appendix.

Some of the rare and treasured tomes held by the library have provided opportunities for in-depth studies into various elements of the history of medicine in Portugal and beyond. **Alain Touwaide** focuses on the monumental, 13 volume folio edition of *Magni Hippocratis Coi et Claudii Galeni Pergameni Archiatron Universa quae extant opera*, published in 1679 and housed in the library collections. Compiled by René Chartier (1572-1654), this enormous work gathers together in one place all

Fig. 1. Library, interior of the National Palace of Mafra. Photo Archive of the National Palace of Mafra. Credit: Luís Pavão.

of the documents by, or at least attributed to the famous ancient Greek physicians, Hippocrates (circa 460-circa 370 BC), sometimes referred to as the "Father of Medicine", and Galen (AD 129–circa 210). The Greek text is presented on one page, with a Latin translation sited opposite. Touwaide's analysis brings the work out of relative obscurity, and his re-assessment of its value helps to promote it as an edition of significance.

Manoel Rodrigues Coelho's (1735) *Pharmacopea Tubalense* is a work that straddles the uncomfortable divide between Galenism, with its reliance on humoral theory, and the new iatrochemistry of the Renaissance. Very popular throughout Portugal and its territories, this compilation, written in colloquial Portuguese rather than Latin, was widely circulated and held in high esteem right through to the early nineteenth century, in spite of the fact that it included some medicines whose use seemed to depend on exoticism rather than any proven therapeutic benefit. **Maria do Sameiro Barroso** focuses on the entry for bezoar stones and unravels some of the confusion that existed between these gastric concretions and the *os cordis*, or "heart bone" of the stag. She takes the opportunity to broaden consideration of bezoar stones and their uses more generally, including in the Chinese tradition.

In 1761, the Portuguese surgeon Francisco José Brandão (1738-1773) published his *Instrucçam Breve sobre a Circulaçam do Sangue, Enriquecida com Notas para Utilidade dos Principiantes* ("Brief Instruction on Blood Circulation Enriched with Notes for its Usefulness for Beginners"). The bulk of the work consists of the translation of an earlier French work by an unaccredited author, with the remainder being made up of annotations and comments on the text by Brandão. **J. Martins e Silva**, making use of a copy in the Mafra Palace Library, produces an analysis of the text with special reference to the structure and functioning of the heart and venous valves, placing the work in the context of comments made by earlier authors.

Philippus Aureolus Theophrastus Bombastus von Hohenheim, better known as Paracelsus (1493-1541) was a rather itinerant physician who worked as a military surgeon (1517-1524), and occasionally as *Stadtphysicus* at a number of urban centres. Opinionated, arrogant and intolerant, he is often known as the "Father of Toxicology". He had a knack for upsetting the authorities, including medical establishment figures almost wherever he went, and advocated the alchemical extraction of the inherent therapeutic principles from the dross of non-therapeutic tissues (in the case of herbal and zoological simples) and surrounding rock (in the case of mineral simples). This approach marked the beginning of iatrochemistry and was bound up in his hermetic and astrological belief system. He poured scorn on the accepted medical wisdom handed down unchallenged from classical authors and promoted a more empirical approach to medicine. Very few of his writings were published during his lifetime, but several editions of his *Opera Omnia Medico-Chemico-Chirvrgica* were published after his death. Working from a 1658 edition in Mafra Palace Library, **Carlos Menezes de Lemos** summarises the available biographical details of Paracelsus, examines the thrust of his medical, chemical and pharmaceutical work and the reactions it provoked amongst Renaissance thinkers and physicians.

A wide range of medicinal simples was available to the apothecary during the early eighteenth century. The Swiss physician, Jean-Jacques Manget (1652-1742) produced a fulsome summary of herbal, zoological and mineral medicaments in his monumental work entitled *Bibliotheca pharmaceutico-medica* or *The Pharmaco-medical Library* of 1703, a copy of a later edition being present in the Mafra Palace Library. Using this text as a starting point, **Christopher Duffin** traces for the first time the history of quartz (*Crystallus* or rock crystal) as a pharmaceutical ingredient. The mineral is shown to have an enormously long pedigree of use as a therapeutic material stretching from classical times to the mid-

eighteenth century. The diversity of its application is also noteworthy, including being used to promote lactation in nursing mothers and wet-nurses, and in medical recipes for the prevention of miscarriage, as an alexipharmic, in dentifrices, topical preparations and in the treatment of epilepsy and a range of other diseases.

The National Palace of Mafra Library possesses a copy of *Serpentum et draconum historiae*, first published in 1640 and written by Ulisse Aldrovandi (1522-1605) of Bologna University. The volume includes an examination of the historical records of dragons, including a fabricated specimen which Aldrovandi had in his own collection. Using this and a wide range of other printed sources, **Rachael Pymm and Christopher Duffin** summarise the origins, history and use of the mythical therapeutic stone which was believed to be present in the dragon's head – the so-called *Draconites*. These authors also use surviving elements of material culture to show how representations of the jewel, particularly in items of Renaissance tableware, may have been used to reinforce their supposed prophylactic and antitoxic powers.

The editors hope that the essays presented in this book will mark the beginning of a new phase of research into the history of medicine centred on the National Palace at Mafra and the collections of its library. We should like to thank the staff at the Palace for their encouragement during the preparation of this work, and the team at Cambridge Scholars Publishing for seeing the collection of manuscripts through to final publication.

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CHAPTER 1

THE NATIONAL PALACE OF MAFRA AND KING JOHN V – SOME HISTORICAL AND MEDICAL INSIGHTS

ANTÓNIO TRABULO

Abstract
The long reign of King John V benefited from the arrival of substantial sums of gold from Brazil to the port of Lisbon. The King could thus promote the construction of remarkable works, unparalleled in Portuguese history. The most emblematic of all is Mafra Palace. The monarch, called the "Magnanimous", was born of a family marked by hereditary family diseases. His health deteriorated after his forties. He is said to have suffered from syphilis. He died at the age of 60, after repeated brain strokes. In this chapter, the available information on his clinical history is reviewed, discussing the diseases that he experienced, and his cause of death.

Resumo
O longo reinado de D. João V ficou marcado pela entrada no porto de Lisboa de quantidades apreciáveis de ouro proveniente do Brasil. O rei pôde, assim, promover a edificação de obras notáveis, sem paralelo na História portuguesa. A mais emblemática de todas é o Palácio de Mafra. O monarca, cognominado de "Magnânimo", nasceu numa família marcada por doenças de transmissão familiar. A sua saúde deteriorou-se, após os quarenta anos de idade. Consta que padeceu de sífilis. Faleceu aos 60 anos, no seguimento de acidentes vasculares cerebrais repetidos. Neste trabalho, procura-se rever a informação disponível sobre a sua História Clínica e esclarecer algumas dúvidas levantadas quanto às causas da sua morte.

Keywords: King John V; National Palace of Mafra; syphilis; brain-stroke.

Introduction

King John V was the son of Peter II (1648-1706), probably a syphilitic, and his second wife, Maria Sofia of Neuburg (1666-1699). According to the medical doctor, writer, and diplomat Júlio Dantas (1876-1962), Peter II was infected by his first wife, Maria Francisca Isabel de Saboia (1646-1683), who carried the condition from France (Dantas 1918, 113). John, who was destined to become the fifth king of his name in Portugal, was born in Lisbon on 22 October 1689, and also died in Lisbon on 31 July 1750.

Throughout his reign, an average of one ton of gold was landed in the port of Lisbon each year. This wealth, which did not result from the work of his subjects in Portugal, inflated his ego, leading him to construct megalomaniac monuments: the Patriarchal Basilica of Lisbon, the Library of the University of Coimbra and the Mafra Palace (Braga 2014, 125; Fig. 1.1).

Fig. 1.1 The Mafra Convent, before 1755. First half of the eighteenth century. Author unknown. Image in public domain.

King John V (Fig. 1.2) ruled Portugal for more than 43 years as an absolute monarch, never summoning the Cortes (parliament). Some chroniclers mistreated him. They called him stupid, vain, and a lady´s man. Some suggested that he was bisexual. The King was known to be pious but prone to lasciviousness. He had countless lovers, fathered six legitimate children and a handful of bastards, and paid generously for his lovers' favours. So far as we know, he had only one passion: Madre Paula (Paula da Teresa da Silva Almeida; 1701-1768), his main mistress, made him travel to the convent of Odivelas on countless occasions. When assessing the life and accomplishments of the King, the doctor and medical historian, José Barata, cites two historians who present different views. The first, Fortunato de Almeida, defends the sovereign by separating his private and public lives: "personal vices are apart from the realms of history, so long as they do not disturb public affairs" (Barata 2012, 46). As a matter of fact, during John's reign, Portugal's prestige in the international community increased.

Fig. 1.2 Portrait of King John V of Portugal by Pompeo Batoni, eighteenth century. Wikimedia Commons CC BY-SA 3.0.

In contrast, Oliveira Martins plays the devil's advocate by saying that Mafra took more money and people than Portugal´s value (Barata

2012, 46). The art historian, Joel Serrão, presents a more comprehensive and in my view, realistic view of historical reality:

> When King John V began his reign, in the middle of the Spanish War of Succession, a danger for Portugal emerged, related to the connections to the high continental power of France which had increased, reinforcing the threat that Spain meant for Portugal, in Europe, and the colonial empire. The Portuguese military effort was manifestly disproportionate to its responsibilities and interests (…)
>
> The accession to the Austrian throne of Emperor Charles III, who claimed the throne of Spain, created the proper environment for peace signed in the Treaty of Utrecht in 1714. King John V remained unalterably faithful to his Atlantic, commercial and political interests. On the whole, he followed a neutral orientation towards Europe. He married an Austrian princess, Mary Anne of Austria (Serrão 1985, 399).

The king soon realized that Austria was too far away to be a powerful ally. "As the connection to Spain was manifestly dangerous, English alliance which, furthermore, offered multiple strategic and commercial advantages seemed to be the right choice*"* (Serrão 1985, 400). It is worth noting that Portugal exported salt, leather, wine, tobacco, and citrus fruits, sold at a reasonable price in the countries of northern Europe. We are prone to say that Fortunato de Almeida is right. Despite his excesses, King John´s governance contributed to the peace and development of the country (Barata 2012, 47).

Looking back at the grandiose monuments that he built, few people doubt the utility of the Águas Livres Aqueduct, which alleviated the chronic difficulty in supplying water to the principal city of the Portuguese Kingdom. A royal charter of King John V boosted the project, though neither the King nor the court became directly involved in the enterprise. The Lisbon solicitor, Cláudio Gorgel do Amaral, took charge of the construction which began in 1731, financed by an additional tax on the meat, wine and olive oil, sold in Lisbon. The works proceeded slowly, ending in 1799 (Saraiva, 1983, 70). The aqueduct that crosses the valley of Alcântara, almost one kilometre long, is of unique beauty.

The Joanina Library of the University of Coimbra represented an effort to make the best published scientific works available to students and teachers. It certainly brought lasting benefits to the University. It is reasonable to think that the King could have achieved the same ends by investing a much smaller sum of money, but he did it, and the facilities are visited annually by many thousands of tourists. The earthquake of 1755 destroyed the Patriarchal Basilica of Lisbon. Few remember it, and I will not mention it further. Mafra still stands. The place is very special. I lived

in one of the wings of the convent from October to December 1969, accompanied by 600 other cadets of the Portuguese Army, attending the Course of Official Militiamen, at the Infantry Training School during the Portuguese colonial war.[1]

Since economic reasons cannot justify the construction of the Church/Palace/Convent of Mafra, other factors must have counted. With this construction, King John V projected an image of greatness both in Portugal and throughout the world. The works began in 1717 under the direction of the Prussian architect Johann Friedrich Ludwig. The monarch was 28 years old. The building was made up of *lioz* stone, a type of limestone abundant in the region. It outcrops over an area of nearly four hectares. 52,000 people worked in the extractive industry there. They were occasionally recruited by force to speed up the construction of the building. Curiously, there was a strike by the masons in 1731 (Serrão 1985, 401).

The convent was for the Order of Saint Francis, initially intended for 13 Friars. As gold came from Brazil, the project grew, first catering for 40, then 80, and finally 300 monks. In the meantime, the construction of the Royal Palace, not initially planned, also started (Gil 1989, 44). The building is said to have more than 4700 doors and windows. The best artists of the eighteenth century, mostly from Rome, were responsible for the paintings and the religious sculptures in the chapel and the convent.

In the palace, a convenient distance of 230 m separated the king's quarters from those of the queen. The palace was primarily used by members of the royal family who used to go out for hunting at the Tapada. These would have constituted the most costly overnight stays in the history of Portugal. Mafra has one of the most beautiful libraries in Europe. It houses 30,000 books, bound in leather, engraved with golden letters, and amongst which are many notable bibliographical rarities.

We cannot consider Mafra without mentioning the work of José Saramago, "Memorial of the Convent", published in 1982. The novel begins with the Kings' name "King John, the fifth of the name". It continues with two parallel stories: the narration of the construction of the convent, and the love story between Baltazar Sete-Sóis and Blimunda Sete-Luas, sharing the dream of Friar Bartolomeu Lourenço who wanted to build a flying machine. Saramago satirizes the habits of the King, the nobles and the clergy, and criticizes, with irony and bitterness, the sacrifices which the construction of this megalomaniacal work forced

[1] The Infantry Practical School was disabled in 2013. The School of Arms of the Portuguese Army has replaced it.

upon the poor. The Nobel Prize winning author describes the official ceremony of the launching of the building project as follows:

> The foundation stone was blessed, and then a second stone and a jasper urn, for all three were to be buried in the foundations, they were carried then in solemn procession, in a litter and inside the urn were placed coins of the day minted in gold, silver, and copper, some medals cast from gold, silver, and copper, a parchment on which a written vow was inscribed. The procession circled the entire square to give the crowd a good view, and people genuflected as the procession passed, only to find themselves constantly genuflecting for one reason or another, first to the cross, then the Patriarch, then the King and finally the friars and canons, so that many of them did not even bother to get up and remained on their knees. Finally, the King, the Patriarch, and some acolytes proceeded to the chosen spot, where the foundation stone was to be laid, descending into the excavations by means of a broad wooden stairway two meters wide and comprising thirty steps, perhaps to commemorate the thirty pieces of silver given to Judas. The Patriarch carried the principal stone, assisted by the canons, while other canons followed carrying the second stone and the jasper urn, behind came the King and the Father General of the Sacred Order of St Bernard, who was almoner-in-chief and in that capacity he carried the money.
>
> And so the King descended thirty steps into the bowels of the earth, it looks as if he is departing this world, and that could mean a descent into hell were he not protected by blessings, scapulars, and novenas, and if those high walls inside the excavations should collapse, Your Royal Highness need have no fear, for we have propped them up with hardwood from Brazil to ensure greater strength, in the centre of the cavity, stands a bench covered with crimson velvet, a colour frequently used in formal ceremonies of state, and the time will come when we shall see the same colour used for furnishing the interior of theatres, on the bench is a silver bucket filled with holy water, and two small brushes made of green heather, their handles adorned with cords of silk garnished and silver, and I as master of works, pour a hod of lime and, Your Majesty, with this silver trowel will spread the lime, which has already been moistened with holy water sprinkled by the tiny brush, now lend a hand, we can lay the stone in position just as long as Your Majesty is the last to touch it, ready now, one tap more for everyone to hear, Your Majesty can climb up now, be careful not to slip (...) (Saramago translated by Pontiero 2001, 126-127).

King John V – Medical insights

On the diseases of the dreamer of the Palace of Mafra, we begin with the report of his autopsy. Sometimes, lives told from the end to the beginning provide a better understanding. The doctor, writer and diplomat, Júlio Dantas in his writing "Autopsies of Kings", states that only four Portuguese Kings were autopsied: Peter II, John V, Peter IV, and Charles. The embalming of the corpses was preceded by emptying of the large body cavities that were then filled with aromatic resins after being washed with turpentine (Dantas 1914, 111). Doctors used autopsies to try to understand the diseases that had killed the sovereigns, about which, in life, there were often more disagreements than consensuses.

King John V suffered a haemorrhagic stroke. The autopsy, carried out by the surgeons Pedro de Arvelos, António Soares and Manuel Ferreira, revealed an enlarged heart, the presence of ascites and the existence of some extravasated blood inside the skull (Dantas 1914, 111). Braga reviewed some additional information provided by a newspaper of the time (*Mercurio de Lisboa,* nº 32, Lisboa, 8 de Agosto, 1750) referring to another finding not described in the autopsy report: "in the head they found a small amount of brain, because it was most reduced" (Braga 2014, 132). Ignacio Barbosa Machado (1686-1766), a prominent Portuguese historian and chronicler of the Bragança Dynasty who wrote on King John's diseases and cause of death, had provided information on the brain enlargement (Machado 1750, 31-32). Dantas does not refer to the result of King John's autopsy reporting a small amount of brain. He accepted the brain enlargement, saying that the size of the King's brain "exceeded the size of that of the average man" (Dantas 1914, 114).

Dantas was aware of the "panegyric character of this necropsy finding", but he let himself be deceived. He questioned the size of the ascites, not the brain enlargement. However, a succession of cerebral vascular accidents gradually reduces the size of the encephalon. Machado fantasized about pleasing the reigning monarch at the time he was writing: King Joseph (1714-1777), son to John V. Moreover, to praise the King, Machado presented other inaccuracies such as the following:

> His Majesty was in quite good health, preserved by the moderation of his food intake, in which he was very sparing, escaping from those disorders which were pernicious to many of his ascendants (Dantas 2018, 246).

Providing an opposite view, Dantas refers to what the judge José Brochado wrote concerning the King's habits: he ate a lot and did not

exercise. Also, Dantas added: “He spends the day listening to stories of the old man" (Dantas 2018, 244).

Cardiac insufficiency indicated by cardiomegaly also explains the presence of ascites and may be the origin of the recurrence of embolic brain strokes, although atheroma is common in the bifurcations of the carotid arteries and the cerebral vessels. Braga also suggests that King John V suffered from syphilis (Braga 2014, 127).

We do not know how carefully the autopsy was carried out, but there is nothing in its report to support the hypothesis that the spirochetes were killing the King. The information provided is limited and does not support the hypothesis of syphilis, but it is enough to discard it. There is no mention of the finding of syphilitic aortitis which, together with the involvement of the central nervous system, represents the main cause of death in *lues venerea*. If so, in the arterial tunica, following the inflammatory process, there would be a fibrous proliferation that would crumple the intima. There is no mention of insufficiency of the aortic valve, with separation of valvular commissures and deformation of the cusps. The existence of calcifications in the ascending portion of the aorta is not mentioned. As for brain lesions, they would be so advanced that it would be almost impossible to determine their aetiology. We should pay attention to the King´s background before advancing assumptions.

In 1700, at the age of ten, infant John became ill, probably from chickenpox. The diagnosis is not precise, and things went wrong. It may have been smallpox, although the disease did not leave the usual skin marks. The doctors did not understand the progression of the disease, and the boy even received the last sacraments. He was then given a draught containing earth from the grave of a woman from Louriçal who had died with the reputation of being a miraculous saint. The patient improved. At the age of fifteen, he was hit by a "second pox." No data are available to follow the diagnosis of this new rash. He suffered from minor illnesses, including "hot flashes" and occasional migraines.

At the age of twenty, already married to Mariana of Austria, he developed a tumour in the anterior part of the neck. It seemed to be mumps, but the location was a little different to normal, and the progression was much slower than usual, having lasted for two months and a half. The cure was attributed to the miraculous application of a barbasco ointment (Braga 2014, 126).

Júlio Dantas speaks of cervical tuberculous adenitis (scrofula), more frequent at that time than nowadays, but cervical adenopathies may have many other etiologies. The King frequently complained of "flatus" (flatulence). In 1715, he was struck by “a stiff flat, as he used to, when he

was at a window in Setubal, watching a bullfight" (Dantas 1918, 246). By this time, King John V magnanimously entered the convents of the nuns of the Orders of Saint Claire and Saint Bernard. At night, he seized ladies and the Queen´s maids in the corridors of the palace. He ordered gold coins to pay for women's favours. Friar John of the Holy Spirit wrote that "women were always in his mind, gypsies, nobles, working women and others." (Braga 2014, 127).

The King turned to the use of aphrodisiacs very early on. He took them in his thirties, consuming ambergris in an attempt to revitalize his libido, and he also searched for other invigorants. In 1728, he sent the ambassador, Louis da Cunha, to inquire of the Dutch doctor Herman Boerhaave (1668-1738) about the therapeutic qualities of ginseng (*Panax ginseng*) of which he had heard. The root of this plant takes forms resembling the human body and figured in traditional Chinese medicine before the Christian era. In the same year, the King received ginseng as a gift from the emperor of China. He would also have taken cantharides. The vesicatory cantharis, or vesicatory lytta, also known as the Spanish Fly (*Lytta vesicatoria*), is a coleopteran of the Family of Meloidae. It is a metallic blue-green species of Blister Beetle, beautiful but smelly, and common in southern Europe. According to Coelho, in the *Pharmocopoeia Tubalensis,* the insects were killed with strong vinegar vapour and dried in the sun. Those that were in the best condition were collected and reduced to dust. Being corrosive and vesicatory, they were used in ointments and patches. Coelho stressed: *"*They are never to be administered inwardly, because of the severe damage they often cause" (Coelho 1735, 168).

The active ingredient in the powder is cantharadin ($C_{10}H_{22}O_2$), an irritant that causes flushing and local vesication. Ingested, it irritates the urinary tract and may cause haematemesis, diarrhoea, collapse and even death. *"*Cantharidin was first isolated as a chemically pure substance in 1810 by Pierre Robiquet a French chemist then living in Paris. Robiquet isolated cantharidin as the active ingredient in pharmacological preparations of *Lytta vesicatoria*. This was one of the first historical instances of the identification and extraction of a simple active principle from a complex medicine" (Nickolls 1945, 1386). Cantharides have been used for centuries in traditional European medicines, such as vesicants (blistering medicines), diuretics and aphrodisiacs. They are still used as aphrodisiacs and for the removal of warts (Recanati 2018, 366).

At the age of forty, malleolar ulcers appeared on King John's legs. Their etiological origin was not accurately determined: varicose, syphilitic, or syphilitic-varicose? (Dantas 1918, 246-247). The interest that Júlio Dantas manifested in the history of that time occupies a particular

space in the bibliography we are presenting. Leg ulcers hit the Portuguese royal family hard. The brothers of King John V (Francis, Antony, and Manuel) were all hit by the same evil and passed them on to the next two generations. The description of the lesions does not provide a specific diagnosis. Let us read a twentieth-century text on late syphilitic lesions:

> Tertiary (late) syphilis generally occurs 5 to 20 years after initial infection and can present with mucocutaneous, cardiac, ophthalmologic, neurologic, or osseous abnormalities. (…) The incidence of late gummatous syphilis has declined dramatically since the introduction of antimicrobial agents. Gummas present as painless, firm nodules on various organs (skin, liver, spleen, bone). Gummas involving the skin form in the hypodermal layer as granulomatous lesions, and their morphology ranges from nodules to plaques. Gummas on the skin often ulcerate and can lead to scar formation and disfigurement. On the organs, gummas are a form of granuloma (a nodule of inflammatory cells) that become hyalinized and undergo fibrous degeneration, which eventually scar and become fibrous nodules (Karnath 2009, 43-48).

King John V did not always get on well with his doctors. In 1738, in a letter to Cardinal da Mota, he said that they knew little of their art. He worried about the reform of national medicine, ordering the importation of updated books. He even invited Boerhaave to come and help to reform medical education in Portugal (Braga, 2014, 128). The king would have been well advised. Herman Boerhaave is currently considered the founder of clinical medicine and the creator of the modern academic hospital. He was a Professor of Medicine and Botany at the University of Leiden. He introduced practical medicine as a discipline and allowed students to attend the hospital. In 1740, King John V suffered his first stroke of little gravity (Braga 2014, 128).

On 22 April of that year, the King's daughter-in-law, Mariana Vitoria (1718-1781), wrote to her mother, Isabel Farnesio (1692-1767), Queen of Spain, informing her that her father-in-law had suffered “a small repeat of the stroke” on the previous Monday. The King did not lose consciousness, but he was bled as a precaution (Braga 2014, 128). On 10 May 1742, the fifty-two-year-old monarch abruptly lost his senses when he was fully dispatching the kingdom affairs. Upon regaining consciousness, he presented diminished strength in the left side of his body. The news of the King's illness circulated in the *Gazeta Manuscrita* of 12 May of the same year: “On Thursday,10 May, when His Majesty was dispatching at 4:00 p.m., he was struck by a stupor that deprived him of his senses, and he was paralyzed on the left side, and leaving him with a hanging mouth (Barata 2012, 49).

All respected doctors were called to Lisbon. The patient was bled and purged. Alternative methods of fighting the disease were not neglected. Relics of saints were deposited in the royal chamber. Queen Mariana of Austria went barefoot to the Mother of God praying for the cure of her husband. Some days later, the cap of Saint André Avelino, protector against apoplexy, was placed on the monarch´s head. Processions were organized in Lisbon and elsewhere, parading miraculous images. These were so numerous that they crossed each other in the streets of Lisbon (Braga 2014, 129).

Anguish had taken hold of the Portuguese people who feared they might lose their king. Experience has shown that most stroke sufferers recover spontaneously, at least partially. That was what happened to the king, who, progressively, regained the ability to move the limbs on his left side. The friars attributed this improvement to a miracle; the physicians attributed the improvement of the king´s condition to the purgatives they had employed. The people of Lisbon recovered their joy and attributed the improvement to the intervention of Our Lady of the Necessities. There was much thanksgiving (Braga 2014, 129). As the science of the time commanded, after bloodlettings, purges, prayers and the search for miracles, the therapy continued with thermal treatment. Three months after falling ill, the king went to Caldas da Rainha hoping to recover. The results of his taking the baths were unclear (Braga 2014, 129).

On 27 September 1742, a new possible stroke occurred. According to Júlio Dantas, it was reported in nº 29 of the Lisbon Brochure, dated 29 September: On Monday 27, from 11:00 am to noon, His Majesty was struck by such intense vertigo that he was deprived of his senses for more than one hour (Dantas 1918, 252). On 2 October 1742, Mariana Vitória, the king's daughter-in-law, reported a severe crisis in a letter to her mother, saying that, at noon, the king had had an epileptic attack, and they thought that he would die. He was given extreme unction. He began to have repeated convulsions, and he was taken to the bed unconscious. A quarter of an hour later, he recovered, and he was well (Beirão 1936, 259).

On 18 October 1843, King John V was hit once again by loss of consciousness. He was bled again. The "attack" recurred four days later. On 29 October, another crisis occurred. Jacksonian seizures in the left hemisphere and sensitive atrophy in the injured limbs are reported as occurring for the first time (Dantas 1918, 253). The epileptic seizures occurred with an approximately monthly frequency over the last eight years of the monarch's life. When they occurred, he experienced several seizures on the same day. King John was bled and went to the baths, now in the Alcaçarias do Duque, in Lisbon. Occasionally he would return to

Caldas da Rainha. As is to be expected, he experienced several periods of depression (Braga 2014, 130). Bishop António Pereira de Figueiredo (1785-1797), a prominent ecclesiastic who had translated the Latin Vulgate Bible into Portuguese, and had written a book in praise of the Portuguese Kings, reported as follows on the last years of King John's life:

> His Majesty was affected by such a paralyzing stroke that, having lost all the vigour of his nerves, he could no longer stand on his legs. For eight years he was forced to walk in a little chair; until on the 31st of July of the year 1750, he gave his soul to God in his palace in Lisbon (Figueiredo 1785, 249).

In June 1748, the French ambassador to Portugal informed his court that Portugal was a monarchy without a monarch and that it had a government without ministers (Braga 2014, 131). The "Magnanimous" King passed away on the last day of July 1750. He is buried in the Church of São Vicente de Fora in Lisbon. Among the doctors who treated him, there are two whose names are recorded for posterity: João Curvo Semedo (1635-1719) and Francisco da Fonseca Henriques (1665-1731). Both published valuable clinical writings.

Could the "Magnanimous" King have suffered from neurosyphilis?

A brief review of the subject in a modern medical textbook reads:

> Some 6.5 per cent of people with untreated primary or secondary syphilis develop neurosyphilis, with a 2:1 ratio of males to females. (Gilroy 1979, 414). All forms of neurosyphilis begin as a meningitis and a more or less active meningeal inflammation is the invariable accompaniment of all forms of neurosyphilis. The early clinical syndromes are meningites and meningovascular syphilis; the later ones are vascular syphilis (1 to 12 years) followed by general paresis, tabes dorsalis, optic atrophy, and meningomielitis. The later are pathological sequences that result from chronic syphilitic meningites. (Adams 1997, 722). Chronic basal meningitis and meningovascular syphilis account for 38 per cent of cases general paresis 32 per cent, tabes dorsalis 27 per cent and gumma of the brain about 3 per cent. Neurosyphilis is rare in patients who contract the primary disease after the age of 40 years. (Gilroy 1979, 415).

The repeated strokes and epilepsy that affected King John V may have been part of the syphilitic aetiology, but the King ate well and did a little exercise, being naturally exposed to atherosclerosis. There may be a