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Plants, Power and Knowledge: An Exploration of the Imperial Networks and the Circuits of Botanical Knowledge and Medical Systems on the Western Coast of India Against the backdrop of European Expansionism

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Malavika Binny was an Erasmus Mundus Fellow at the Leiden University when she attended the Global Histories Conference and submitted her article, but has since returned to India. Now at the Centre for Historical Studies, Jawaharlal Nehru University, New Delhi, she is conducting a PhD on the topic of Bodies, Power and Space in Premodern Kerala. Her research interests include the history of knowledge transfers, histories of science, gender, spaces, identities, environmental history and subaltern studies.

The confluence of multiple branches of history in recent times, mainly owing to a revival of interest in histories of science and environmental history, has revealed the presence of a network of knowledge, which has been in existence from the Renaissance and in some fields even prior to it. Interwoven into the global web of knowledge transfers are the histories of botanical science and medical systems, which this article intends to analyse in the context of the Indo-Portuguese-Dutch engagements on the south-western coast of India. The Malabar Coast, in particular, plays a unique role in the history of Indian Ocean trade and it offers a fertile arena to investigate the multi-layered interplay between diverse knowledge systems both at a global and local level. The encounters between the European and the local knowledge systems occurred more in terms of social-cultural exchange and the production of hybrid systems of knowledge rather than of cultural conflict. An in-depth analysis of Garcia Da Orta's *Colóquios dos simples e drogas he cousas medicinais da Índia* (Conversations on the Simple, Drugs and Materia Medica of India) and Hendrik Adriaan van Rheedee tot Drakenstein's *Hortus Malabaricus* along with the Sanskrit and vernacular 'Ayurvedic' texts (such as *Susruta Samhitā* and *Caraka Samhitā*), will be used to explore the multiple lineages of what we understand today as science and medicine and the mechanisms through which indigenous knowledge was collected, documented and transferred into European botanical and scientific networks and the interplay between the diverse healing/botanical traditions.

It is only recently that the histories of science and the historiographies of European expansionism (or the contraction of the world as some historians call it) have found a common platform of convergence. This confluence of multiple branches of history has revealed the presence of a network of knowledge which has been in existence from the pre-Renaissance period. Interwoven into the global web of knowledge transfers are the histories of botanical science and medical systems, which this paper will be analysing in the context of the Indo-Portuguese-Dutch

engagements on the Western coast of India.¹ The relevance of botanical transfers in empire building has been a topic of recent historical interest with the role of agents, actors, micro and macro networks, and the analysis of the emergence of botanical gardens and botanic departments in European universities in the late medieval and early modern period, being some of the major themes on the historical radar.² Whilst Richard Drayton has brilliantly analysed the history of the Royal Botanical Garden of Kew and the networks of botanical transfers³ Londa Schiebinger's seminal work, *Plants and Empire*, meticulously brings out the vivid facets of bioprospecting in the Atlantic world.⁴ Drayton examines the rise of botanical gardens in Europe through the spectrum of information flows with a keen eye for the agents and the institutions involved alongside exploring the inter-linkages between the botanical endeavour, the interests of the empire and its larger ramifications on 'science' in general. Londa Schiebinger gives a representation to many voices involved in the collection of knowledge with an extreme sensitivity to the diverse epistemes at play in the process and the development of botany as 'big science' and 'big business' for carrying out the interests of the empire. She follows not only the directions of the movement and the mixing of different knowledge systems, but also the extinction and domination of some types of knowledge along the course. Both of these works have served as the starting point of this article as it seeks to engage with both actors and agents involved in the networks as well as the encounters between the diverse epistemes of the local and global systems. Alan Lester has argued that a 'networked' approach, placing actors in the contexts of their networks, might be the most effective method to look at natural exchanges in the pre-modern and early modern context.⁵ I have tried to incorporate this approach in probing da Orta's and Van Rhee's works on the flora of the Malabar Coast.

1 For detailed analyses on the theme of imperial knowledge networks, see Kapil Raj, *Relocating Modern Science: Circulation and the Construction of Knowledge in South Asia and Europe, 1650-1900* (Basingstoke: Palgrave Macmillan, 2007); Richard H. Drayton, *Nature's Government: Science, Imperial Britain and the 'Improvement' of the World* (New Haven: Yale University Press, 2000); Ray McLeod, *Nature and Empire: Science and the Colonial Enterprise* (Chicago: University of Chicago Press, 2000).

2 Richard Grove, *Green Imperialism* (New York: Cambridge University Press, 1995); Drayton, *Nature's Government*; Londa Schiebinger, *Plants and Empire* (Cambridge: Harvard University Press, 2004); Joseph S Alter, *Asian Medicine and Globalization*, ed., (Philadelphia: University of Pennsylvania Press, 2005); Siegfried Huigen, Jan L. de Jong and Elmer Kolfin, eds., *The Dutch Trading Companies as Knowledge Networks*, (Leiden: Brill, 2010); Vinita Damodaran, Anna Winterbottom and Alan Lester, eds., *The East India Company and the Natural World*, (London: Palgrave Macmillan, 2015); Ines G. Županov and Angela Barreto Xavier, "Quest for Permanence in the Tropics: Portuguese Bio prospecting in Asia (16th-18th Centuries)", *Journal of the Economic and Social History of the Orient* 57 (2014):511-48, among several others.

3 Richard Drayton, *Nature's Government*.

4 Schiebinger, *Plants and Empire*.

5 Alan Lester, introduction to *The East India Company and The Natural World*, eds. Vinita Damodaran, Anna Winterbottom and Alan Lester, (New York : Palgrave Macmillan, 2015).

The founding conflict of the eighteenth century that shaped the history of the discipline was that of the ancient and modern. This European contest between the ancient and the modern reappears in the history of science of the non-Western world as a dichotomy that distinguishes tradition and modernity.⁶ Historians who have internalised this distinction have more often than not assumed a static view of both culture and knowledge – wherein the traditional is typically depicted as unchanging, threatened by, and fighting against a modernity that would like to see it buried.⁷ This image is true not only for the history of science, but also for the history of medicine and knowledge transfers and it is only recently that the approach has been criticised and challenged by stressing the multi-vocality and fluidity of both knowledge systems.

One of the main aims of this article is to argue that while we do have evidence of a dynamic European and local exchange of knowledge from the south-western coast of India from the fifteenth century onwards in plentitude, the knowledge that was extracted and transferred from south-west India to Europe was stripped of its cultural attachments and divorced from the local epistemological framework and reformulated according to European interests and ‘scientific’ traditions. The article will also question the idea of Ayurveda as a crystallised form of knowledge associated only with Hinduism with an aim to show that even those traditions of medicine and science which existed prior to the arrival of the European mercantilism to the coasts of South India were not homogenous and were the results of the inter-mixing and convergence of multiple knowledge/thought systems, whose roots can be traced to widely divergent backgrounds including those of Buddhism and tribal medicine. Also, through a comparative analysis of Garcia da Orta’s *Colóquios dos simples e drogas he cousas medicinais da Índia* (Conversations on the Simple, Drugs and Materia Medica of India) and Hendrik Adriaan van Rheede tot Drakenstein’s *Hortus Malabaricus* along with the Sanskrit and vernacular Ayurvedic texts (in particular the *Susruta Samhitā*, *Caraka Samhitā* and *Amarakōśā*), the article seeks to arrive at a comprehensive analysis of the modalities of global knowledge production in the early modern period and its subsequent diffusion.

The Malabar Coast plays a unique role in the history of Indian Ocean trade and cultural intercourse.⁸ The coast, where Vasco Da Gama’s ships arrived in 1498

6 S.Irfan Habib and Dhruv Raina, “Reinventing Traditional Medicine: Method; Institutional Change and the Manufacture of Drugs and Medication in Late Colonial India” in *Asian Medicine and Globalization*, ed. Joseph S. Alter, (Philadelphia: University of Pennsylvania Press, 2005), 67.

7 Ibid.

8 Various historians have argued on the significance of the Malabar Coast in Indian Ocean trade and cultural contacts including Asin Das Gupta, *Malabar in Asian Trade; 1740-1800*, (Cambridge: Cambridge University Press, 1967); M. N. Pearson, *The Portuguese in India*, (Cambridge: Cambridge University Press, 2006); Pius Malekandethil, *Portuguese Cochin and the Maritime Trade of India, 1500-1663*, (New Delhi: Manohar, 1991) and Jonathan I. Israel, *Dutch Primacy in World Trade, 1585-1740*, (New York: Oxford University Press, 1989).

C.E., offers a fertile arena to investigate the multi-layered interplay between diverse knowledge systems. While ‘bio-prospecting’⁹ on the South Indian coast in the medieval and early modern period has caught the fancy of historians and anthropologists in recent times,¹⁰ little work has been done on the pre-existing knowledge forms and transfers, something which has been a major lacuna in understanding the nuanced nature of these networks in the medieval and pre-modern context. It also disregards the polyphonic nature of the knowledge that was transferred in the first place crediting only the collection of the knowledge and dissemination of it in the Occident, which was mostly a European endeavour. Even recent attempts which argue that the knowledge (compiled, categorised and codified in the premodern period) may have had non-European and non-elite episteme,¹¹ is based on the analysis of European texts without the inclusion of any South Asian work.

Richard Grove has suggested that the existence of European printing, botanic gardens, global networks of information and *material medical* transfer, and the increasing professionalization of natural history seem actually to have facilitated the diffusion and dominance of an Ayurvedic and Ezhava epistemological hegemony alongside the erosion of older European and Arabic systems.¹² While the recognition given to the Ayurvedic and Ezhava traditions is indeed a welcome change, the focus remains Van Rhee’s *Hortus Malabaricus* and its relevance in the history of knowledge production. Furthermore, the knowledge which was collected from the Malabar Coast for the production of *Hortus Malabaricus* was distilled and reformulated in such way that the final product was bereft of any epistemic semblance of either Ayurvedic or Ezhava knowledge.

9 Bio prospecting in the context of this paper is understood as the process of collecting and compiling information on biological knowledge especially that of medico-botanical knowledge from those regions under European colonial hegemony in the late medieval and early modern period to serve European colonial and imperial interests.

10 Richard Grove, “Indigenous Knowledge and the Significance of South-West India for Portuguese and Dutch Constructions of Tropical Nature”, *Modern Asian Studies*, 30-1 (Feb., 1996).

11 The usage of episteme in this chapter is a slight modification of Michel’s Foucault’s use of the term in *The Order of Things*. While Foucault uses it as an *a priori* condition which facilitates the possibility of the production of particular forms of knowledge, this article uses it as not only conditionality but also a structuring device which goes beyond a facilitating device, but becomes a structuring device in the production of the particular knowledge. The approach adopted by Foucault is extremely useful in understanding the many layered process of knowledge production and the need to excavate the specific epistemes involved and their interaction.

12 See, for instance, Ines G. Županov, and Ângela Barreto Xavier, “Quest for Permanence in the Tropics: Portuguese Bio-prospecting in Asia (16th-18th Centuries),” *JESHO* 57, (2014). Also Richard Grove, “Indigenous Knowledge and the Significance of South-West India for Portuguese and Dutch Constructions of Tropical Nature,” *Modern Asian Studies*, 30-1 (Feb., 1996).

The Lure of the Pepper Coast and its Many Seekers

Both economic historians and historians of science have pointed towards a quest for indigenous knowledge of Asia, the Americas and Africa during the initial period of European expansionism. The collection of botanical knowledge which formed a huge part of the colonial or proto-colonial endeavour had a two pronged motive. One was to understand and explore the commercial possibilities of botanical products. The other intention was to address the issue of the availability and access to potent drugs for medical treatment, not only of the personnel employed either by the European companies or the empire (who worked in non-European regions), but also to cater to a growing demand for medicine from the East and the New World back in Europe. The drugs procured from the New World and Asia were highly priced in the apothecary network in Europe and the respective European governments were seeking ways and means to procure them cheaply. Methods to cultivate these plants in Europe commercially were also being explored. Mercantilism flourished through the fecund coupling of naval prowess to natural history. Eighteenth century botanical exploration followed trade routes, as naturalists of all stripes found passage on trading-company, merchant-marine, and naval vessels headed for European territories abroad.¹³

The south-western coast of India known as the Malabar Coast, which was already familiar to the Europeans, was one of the regions subject to the process of intense botanical transfers under successive European powers such as the Portuguese and the Dutch. The small geographical space of modern day Kerala, which was referred to in European sources as Malabar or *Keraladesa*, has been of both historical as well as academic interest for about two millennia. The trade connections between Malabar Coast and Europe have been effectively traced to Greco-Roman antiquity by historians on both sides of the Indian Ocean. The modalities of the trade involved the exchange of materials, ideas and ideologies both ways across the ocean. The mechanism that enabled the socio-economic intercourse up to the fifteenth century was facilitated and mediated by middle-men from the north-eastern coast of Africa and the Arabian Peninsula.

The source of interest which brought ships from Europe, Africa, Arabia and East Asia to the verdant coast was its fame as a garden of spices prompting some authors to call it 'the pepper coast'; the land was equally famous as a treasure trove of potent medical herbs. Some of the most notable attempts at the collection of 'indigenous' botanical and medical knowledge were those by Garcia Da Orta, Christobal Acosta, L'Empereur and Van Rheedee,¹⁴ the first and the last being

13 Schiebinger, *Plants and Empire*, 8.

14 *Le Jardin de Lorixa* or *Jardin de Lorixa* (The Garden of Orissa) is a French manuscript by a French physician called Nicolas L'Empereur. There is no evidence of it having been published, though the effort itself shows the interest in the floral wealth of South Asia. Christobal Acosta's *Tractado de las drogas y medicinas de la Indias Orientales* which was published in

the major focus of our discussion. The cause for the Malabar coast being chosen for the collection of botanical knowledge might have been owing to the relative familiarity of the coast to Europeans and also because of the presence of fairly well developed healing systems which dealt with a vast array of botanical herbs on the south-western coast of the Indian subcontinent. The visitors and traders might have brought news back to Europe about the potency of indigenous herbs, especially since medicines brought from Europe used to lose their efficacy under the tropical climate. Van Rhee de mentions that during his many trips in his official capacity as the Captain and later Commander and Governor of VOC in Malabar, he learnt about the prowess of the people of the Malabar Coast in identifying and administering botanical herbs as medicine and was convinced that the Malabar Coast was the ideal place for a botanical endeavour.¹⁵

Indigenous Knowledge, European Authors and the Production of Medico-Botanical Texts

Historians have correctly focused on the explosion of knowledge associated with the scientific revolution and global expansion, and the frantic transfer of trade goods and plants between Europe and its colonies.¹⁶ Historians of science and historians of medicine have waxed eloquent about the influx of botanical knowledge from the East and from the Atlantic coast as well as the movement of medical knowledge from Europe to the rest of the world as part of Christian and civilizing missions. Until the last couple of decades, most of the works dealt with the theme as ‘the march of progress against barbarism’ or ‘triumph of modern medicine against savage diseases’ whose origins were traced back to the colonies. It is only recently that such a framework has been intensively questioned and dismantled by interlinking the influx of botanical knowledge with the growth of modern medicine, thus contextualising the role of the indigenous knowledge in the growth of science and medicine in Europe.¹⁷

A resilient and long-standing narrative in the history of science has envisioned the flowering of modern botany as the rise of taxonomy, nomenclature, and pure

1578 in Spanish was heavily drawn from Garcia da Orta’s *Colóquios dos simples e drogas he cousas medicinais da Índia* and gained more popularity than da Orta’s original work.

15 Hendrik Adriaan Van Rhee de, Preface to the Third Volume of *Hortus Malabaricus*, trans. K S Manilal, Malayalam Edition, (Thiruvananthapuram: Kerala University, 2008), xi-xii.

16 Some of the exemplary works on the theme include Harold Cook, *Matters of Exchange* (New Haven and London: Yale University Press, 2007); Siegfried Huigen, Jan L. de Jong and Elmer Kolfin, eds. *The Dutch Trading Companies as Knowledge Networks*, (Leiden: Brill, 2010); Vinita Damodaran, Anna Winterbottom and Alan Lester, eds. *The East India Company and the Natural World*, (London: Palgrave Macmillan, 2015).

17 For example, Harold Cook in his ‘*Matters of Exchange*’ has drawn out the networks of the Dutch East India company (VOC), the apothecary network, the role of individual physicians, chemists and doctors in the transfer of both materia medica as well as matters of commerce and science in the early modern period and its subsequent impact on the intellectual history of the Netherlands in particular and Europe in general.

systems of classification.¹⁸ Botany in this period was “big science” and “big business”, an essential part of the projection of military might into the resource-rich East and West Indies.¹⁹ Injury and disease were a more serious, constant and certain threat than any rival nation’s military challenge; no other factor constituted a greater drain on resources. Hence, expanding medical capacities – the quest for useful healing techniques and remedies, assumed a central if unsung place in the strategic planning of every imperial and commercial enterprise. There were other reasons for the pursuit of botany that included an interest in procuring exotic commodities and the honour, prestige and social mobility which could be accessed by publishing ‘authoritative’ books on science and travel. Cook has also suggested that this was owing to a shift away from armchair science to a science more embedded in experience.²⁰ But there were also more practical reasons at work in the search for tropical herbs that included the inefficacy of western medicine under tropical climates, the perishability of drugs in warmer and sunnier terrains and, in some cases, the contact with new types of diseases.

The Malabar Coast, as mentioned earlier seems to have been the ideal space for, the same as it has been famed for, its physicians and medicine for centuries. The first attempt at what can be vaguely termed as ‘bio-prospecting’ specifically in the realm of medicine was by Garcia da Orta who has been referred to as a pioneer of tropical medicine, especially with regard to the *materia medica* of the tropics. His work, the *Colóquios dos Simples e Drogas da India*, in many ways, influenced later works such as that of Carolus Clusius, Van Rhee de, Nicolas Monardes, Herman Boerhaave and Jacobus Bontius, and played a crucial role in expanding the horizons of multiple disciplines such as botany, medicine, pharmacology and what we understand today as ethnology.²¹

The path-breaking nature of da Orta’s work is exemplified in its citations and acknowledgement in later works and it is he who has to be thanked for the dissemination of detailed and nuanced knowledge on tropical *materia medica* among the European botanical circles. The significance of the work can also be inferred from the fact that his book on medicine in general, and tropical drugs in particular, was the second book to be published in Goa under the Portuguese. The work written in Portuguese was first published by a certain João de Endem at the Saint Paul’s College at Goa in 1563. It contains 59 colloquios in the form of conversations between the author and other characters, some historical and some fictional. In it, he discusses in detail 75 botanical and non- botanical drugs and 200 other floral and faunal elements. Even though the primary agenda of the work is to pres-

18 Londa Schiebinger, *Plants and Empire*, 5.

19 Ibid.

20 See Harold Cook, *Matters of Exchange*, Chapter.10, “Refusal to Speculate”, 378-409

21 For a detailed analyses of the geographical spread of the impact of da Orta’s work, see Palmira Fontes da Costa, “Geographical expansion and the reconfiguration of medical authority: Garcia de Orta’s Colloquies on the Simples and Drugs of India (1563)”, *Studies in History and Philosophy of Science*, 43, (2012).

ent Indian *materia medica* to European medical and botanical circles, da Orta also takes refreshing diversions and discusses other matters such as the local politics, the Indo-European trade, certain aspects of contact with China, local practices and rituals and so on.

In spite of frequent digressions and the innumerable typographical errors that disfigure the book, da Orta corrected many erroneous notions about Indian plants and described several important plants and their uses for the first time.²² Although the importance of the *Colloquies* in the sixteenth-century natural history and medicine has been generally acknowledged in the international historiography, there are still relatively few recent and detailed studies of the work and its influence in other texts on the subject.²³

Having inherited the best of Renaissance teaching from Iberian universities, da Orta was extremely familiar with the Greco-Roman traditions of medicine. He constantly refers to Galen and Hippocrates, and his work is interspersed with quotes from Dioscorides and Pliny. He is more respectful, nonetheless, of Persian and Arabic medical scholars such as Avicenna²⁴ and Mesué,²⁵ and on several occasions claim that they are more credible than the Greek texts with regard to tropical herbs. Suffice to say here that da Orta was a polyglot and maintained close contact with merchants from China, the Malay islands and the Malabar Coast, which helped him compare various types of the same herbs from different parts of the globe. *Colóquios dos Simples e Drogas da India* was translated into Latin by Carolus Clusius, who was by then an acclaimed botanist, under the title: *Aromatum et Simplicium Aliquot Medicamentorum apud Indios Nascentium*.²⁶ Christobal Acosta also borrowed heavily from Orta's *Colóquios* in his *Tractado de las drogas y medicinas de las Indias orientales* published in Spanish which became even more popular than da Orta's original work.

Whilst Orta was a physician - and his work an individual initiative pursued during the years he spent on the Indian peninsula collecting, analysing and studying indigenous herbs and healing practices - Van Rheedé's *Hortus Malabaricus* was

22 Louis Pelner, "Garcia de Orta: Pioneer in Tropical Medicine and Botany", *Journal of the American Medical Association*, 197(1997):12.

23 Palmira Fontes Da Costa and Teresa Nobre De Carvalho, "Between East And West: Garcia de Orta's Colloquies and the Circulation of Medical Knowledge in the Sixteenth Century", *Asclepio: Revista de Historia de la Medicina y de la Ciencia*, 65.1(2013):008.

24 Avicenna is the Latinised version of Ibn Sīnā (980-1037 C.E.) who was a celebrated Persian thinker and polymath. He wrote about forty books on medicine, among which *Kitab Al Shifa* (The Book of Healing) and *al-Qānūn fī al-Ṭibb* (The Canon of Medicine) are the most celebrated. Avicenna's work was taught in several medieval universities and remained as the authoritative texts till 1650 C.E.

25 Mesué the younger is the Latinised name of the Syrian physician Masawaih al-Mardini who wrote the celebrated book on pharmacopeia called the *Antidotarium sive Grabadin medicamentorum*, which was the considered to be one of the fundamental texts in Western medicine.

26 Carolus Clusius, *Aromatum et Simplicium Aliquot Medicamentorum apud Indios Nascentium*, (Antwerp: Plantin, 1567)

in many ways an initiative pursued within the framework of the VOC apparatus, and his position as the Dutch Governor of Malabar greatly helped him in the endeavour. The work was published as a 12 volume series from 1678 to 1693 over fifteen years. It contained information on 725 plants and has 791 illustrations of the flora of Malabar. Van Rheedee had the open support of the Cochin Maharaja and organised teams of local people to collect and compile botanical specimens on the Malabar Coast and beyond. He formed a panel of eminent physicians from diverse traditions (Brahmana and Ezhava vaidyas) who did most of the work for him and it can be suggested with some degree of certainty that his role was more of an organiser or a ‘project head’ in the production of the monumental work that is referred to as *Hortus Malabaricus*.²⁷ Heniger has argued that the publication of *Hortus Malabaricus* was not above the politics within the VOC and the considerable critiques its first volume received in Amsterdam was a result of a power-tiff between Rijklof van Goens, the commander of Ceylon and Van Rheedee over the administration of the Dutch colonial government.²⁸ The scheme of the phenomenal work was first formulated by Matthew of St. Joseph, a Carmelite priest of Cochin and was later reworked under the advice of Paul Hermann, a doctor of medicine at the University of Leiden. Paul Hermann arrived in Cochin in 1674 C.E. and as the preface of the third volume of *Hortus Malabaricus* tells us, made several suggestions on the work which changed its format, even though some elements from Matthew’s original scheme were preserved.²⁹

Heniger’s study of the work also argues that the work had a considerable impact on the subsequent works of Linneus and Hermann Boerhaave, especially in relation to botanical taxonomy and the development of the Linnean system of botanical classification. A variety of exhaustive accounts now enables us to chart the ideological and practical history of the compilation of the *Hortus Malabaricus*, the accounts by Heniger, Manilal and Fournier being the most significant,³⁰ and it can be effectively argued that *Hortus Malabaricus* was a first of its kind involving exclusively South Asian flora. The work as vouched for by Van Rheedee himself was meticulously illustrated according to the contemporary scientific methods af-

27 Marian Fournier, “Hortus Malabaricus of Hendrik Adriaan Van Reede Tot Drakestein,” in *Botany and History of Hortus Malabaricus*, ed. K..S.Manilal, (New Delhi: Oxford IBH, 1980),6-23.

28 J. Heniger, “Van Rheedee’s Preface to the Third Volume of Hortus Malabaricus and its Historical and Political Significance,” in *Botany and History of Hortus Malabaricus*, ed. K..S.Manilal, (New Delhi: Oxford IBH, 1980).

29 Van Rheedee, Preface to the Third Volume of *Hortus Malabaricus*, xii-xiv.

30 See J. Heniger, *Hendrik Adriaan Van Reede Tot Drakenstein (1636-1691) and Hortus Malabaricus; A Contribution to the History of Dutch Colonial Botany*, (Rotterdam: A.A Balkema, 1986); M. Fournier, “Hortus Malabaricus of Hendrik Van Rheedee tot Drakenstein” in K S Manilal, ed. Manilal, *Botany and History of Hortus Malabaricus*, (New Delhi: Oxford IBH, 1980); K S Manilal *Hortus Malabaricus and Itti Achuden*, (Calicut: Menrar Books,) and K S Manilal, Preface in the *Hortus Malabaricus , Volume I*, (Thiruvananthapuram: Kerala University), 2008, xi-xviii.

ter being thoroughly inspected by the expert panel under the watchful eyes of the VOC governor and some of the observations it makes are gems of modern botany.

While the impact of both da Orta's and Van Rheedee's works on the development of botany has been the subject of intense academic scrutiny with scholars more or less agreeing on their relevance to the perception of botany as 'big science' in the early modern period, the question as to the provenance of the indigenous knowledge still remains unanswered. Da Orta claims to have amassed the information from his many interactions with native physicians, including those of the court of Burdan Nizam Shah I of the Nizam Shahi dynasty of Ahmadnagar (whom he was physician to) and other local healers and merchants.³¹ On the other hand, Van Rheedee clarifies his lack of botanical expertise in the preface to the third volume of *Hortus Malabaricus* and specifies that he had a team of local people who collected the specimens and an expert panel of physicians which included, an Ezhava physician (Itti Achuden), Gowda Saraswath Brahmins (Ranga, Vinayaka and Appu Bhatt) and a Carmelite priest (Father Matthew) among others.

While da Orta and Acosta after him are silent on the sources of information of the 'Gentoo' and 'heathen' physicians, Van Rheedee mentions that his team of local experts debated with each other on the botanical specimens using verses from their ancient texts identifying plants and their features.³² It can be inferred from the detailed passage in which Van Rheedee mentions the interaction between the local scholars that the 'ancient texts' mentioned were in all probability those texts composed in Sanskrit, Manipravalam and Malayalam which are now referred to as Ayurvedic texts. Van Rheedee's mentions of the practice of a meticulous system of retention by memory and the identification of the full verse by its first word are all practices associated with Sanskritic learning.

Additionally, Van Rheedee very specifically mentions the involvement of 'high caste' Brahmins in the debate and the use of Brahmin language as the functional language, in which most ancient texts used by Brahmins were composed; it can be quite safely argued that no texts other than 'Ayurvedic texts' could be the source of their information. The certificate given by Itti Achuden in Malayalam language written in kōlezhethu script also points towards a Malayali (or an Ezhava) component at work. The certificates provided in the text by Ranga, Vinayaka and Appu Bhatt also mention that they have used the information from their ancient text titled Manhaningattnam. At this point, it is important for us to look at Ayurveda and its knowledge structure to understand the flow of information from the indigenous to the global context. Some of the issues we deal with in this section involve the epistemic structure of Ayurveda and its various trajectories and the evolution

31 Garcia Da Orta, *Colloquies on the Simples and Drugs of India*, trans. Clement Markham, London: Henry Sotheran & Co., 1913. See for instance Thirty-Seventh Colloquy on Mirabolanos where Orta seeks advice from Arabic and Gentoo, Bengali physicians or the Forty Sixth Colloquy on pepper among many others.

32 Van Rheedee, Preface to the Third Volume of the *Hortus Malabaricus*, xvi.

of Ayurveda as the prominent system of knowledge that the European networks tapped into. One of the major objectives of the section is also to prove that the Ayurvedic system of medicine is not only a ‘Hindu/Brahmanic’ form of medicine as it has been projected in recent times, but a system of healing drawing its roots from multiple traditions. So the movement of information flows between knowledge systems were not merely contingent on the European exercise of knowledge collection, but go back to a much earlier time, the European enterprise being the relatively recent and most organized one.

The Polyphonic Healing Traditions of the Malabar Coast

The tradition of Ayurveda which is often quoted as the “Indian system of medicine”,³³ is said to have been prevalent on the coast of Kerala from the eleventh century with the establishment of the Brahmin settlements along the riparian belts.³⁴ Ayurveda has often been thought of as a monolithic system of medicine and since it has the suffix of *veda* attached to it, it is often thought to have been preserved timelessly without any change. In addition, the idea of permanence is also reinforced by the overarching influence of texts such as that of *Caraka samhita* and *Susruta samhita* which have been taken to be the seminal texts of Ayurveda throughout the Indian subcontinent.

The meticulous reference system followed by the authors of later Ayurvedic texts attaches a notion of fixity to the branch of medicine. It is also from this myth of permanence that Ayurveda, in a sense, derives its legitimacy. But as any other branch of science, no knowledge remains unquestioned and rigid, it moves ahead through multifarious trajectories being invented and reinvented. The presence of multiple recensions of the texts themselves and the variations in the way that Ayurveda is practiced in various parts of India prove that in the pre-modern period this branch of medicine was never considered to be a single unified strait-jacketed system. It continued to converse and engage with other streams of medicine and kept including within its fold new practices and materia medica while modifying its own internal epistemes.

33 AYUSH, the flagship programme of the Indian Ministry for Health and medicine identifies Ayurveda as the Indian tradition of medicine and is an actor in actively promoting it to be the same both within the country and overseas, often at the cost of other traditional healing systems such as *Siddha Vaidyam*, tribal and *unani* medicine.

34 Kerala, throughout the paper will be used to refer to the geographical and cultural space in which Malayalam was spoken from the early period of the eleventh century of the Common Era on south-western coast of India; for a detailed analysis of the emergence of the Brahmins as a prominent community in Malabar and their settlements at various places along the Malabar Coast mainly done on the basis of meticulous epigraphical probing, see Kesavan Veluthat, *Brahmin Settlements in Kerala: Historical Studies*, (Calicut: Sandhya Publications, 1978). Also Kesavan Veluthat, *The Early Medieval in South India*, (Oxford: Oxford University Press), 2010.

For the purpose of this study, we shall try to understand the development of the Ayurvedic discourse over three stages. The first stage deals with the composition of the foundational texts of *Caraka samhita* and *Susruta samhita*, from which the theorization on general principles of the body, health and disease began and which later on became the fundamental principles of the discipline. The second stage which saw the production of texts such as *Ashtāngasamgraha*, *Ashtāngahrdaya*, *Mānavanidanam* and *Siddhayogam* can be identified as one which saw the emergence of regional variations. This stage witnessed a profusion of commentaries on the early texts as well as the production of new texts which summarized, edited and elaborated on many principles of the foundational texts according to the region and the period. The third stage witnessed a further regionalization with texts such as *Yogasamgraham*, *Yogasaram*, *Yogachintamani*, *Vaidyakachikitsa samgraham*. It is also characterised by the inclusion of what can be clearly identified as regional practices. The texts of this phase and their commentaries also actively engaged in criticising, verifying and in some cases, accepting other medical discourses. By no means were these phases watertight and a precise chronological delineation of the phases is next to impossible. The diversity of the cultural landscape and the vastness of the geographical territory of India allow no possibility of uniform phases; there will have been overlaps and some phases might have existed in different parts of the region.

Conventional historical writing disregards the fact that Kerala had medical traditions which existed even prior to Ayurvedic tradition. This involved a considerable contribution from Buddhism which was a major force from the sixth century to about the eleventh century.³⁵ The evidence of Buddhist medical tradition can be gleaned mainly from two sources. The first one is from the historical evidence provided by the *Amarakōśa* of Amarasimha and the post Sangam Tamil epic *Maṇimekalai*, which was composed by the Buddhist monk-prince Ilango Adikal.³⁶ The second is the anthropological evidence of *Naga* worship and the presence of serpent groves (*kāvu*) and the associated *viśacikitsa* (medical treatment using snake venom as a major component) which is attributed as well to the Buddhist legacy in Kerala.³⁷

Prominent among other traditions which also existed in Kerala (which were initially not part of Ayurveda), the evidence of which can be culled out from folklore as well as epigraphical evidence, is the *Ezhava vaidyam* practiced by the so called low caste Ezhavas. Yet other traditions such as *marmacikitsa*, *kalari vaidyam* and *kathakali vaidyam* – all of which involved medicine, a strict dietary regime as

35 Sreedhara Menon, *A Survey of Kerala History* (Kottayam: DC Books, 2007), 86-88.

36 *Amarakosham* also known as *Nāmalīṅgānuśāsanam* was written by Amarasimha who is claimed to have lived in the seventh century of the Common Era. It makes reference to the Buddha as well as deities associated with Puranic Hinduism and has had great reception on the Malabar Coast.

37 Menon, *A Survey of Kerala History*, 87.

well as physical exercise as part of the treatment and dealt mostly with martial and performative art traditions. Simultaneously, they were also catering to the needs of society and in particular, the treatment of orthopedic injuries and arthritis were also prevalent in the region. While *marmacikitsa* laid a heavy emphasis on the diagnosis of disease and health by reading the nodal points of the body, *kalari-vaidyam* involves the practice of oil massages and a strict exercise regime.

Ezhava-vaidyam is the most controversial tradition in the historical streams of medicine. The practice of medicine by the Ezhavas has been recognised and accepted in historical debates partially owing to the fact that it is a living tradition. The reach of the tradition has been debated especially in the context of the monumental work *Hortus Malabaricus*; the caste of one of its authors Itti Achuden, re-discovered and celebrated in Kerala in present times (2004-2010), being a matter of a heated discussion. Tribal medicine, *lada vaidyam* (medicine practiced by travelling physicians called *lādans* belonging to lower caste or non-Hindu/non Brahmanic communities), *Rasavaidya* (iatro-chemical medicine) and certain forms of *unani* medicine practiced by the *Moplah* Muslims also existed simultaneously with the above mentioned healing systems.

The prevalence of multiple forms of traditions within the same region can, with a fair degree of certainty, be attributed to the caste and *jati* (sub-caste) restrictions, which manifested themselves in a strict dietary restriction (the prohibitions on consumption of meat and certain types of plants, especially tubers), as well as bodily regulations such as ‘untouchability’ and ‘unapproachability’ practiced in South India from the medieval to the modern period. It is into this veritable cornucopia of healing traditions that the European dipped their hands during the early period of European expansionism.

Global Networks and the Appropriation of Local knowledge

It can be suggested that the evidence provided by texts such as that of Garcia de Orta and *Hortus Malabaricus* informs us of a period of a close interaction of divergent and often contradicting knowledge systems. Da Orta, in the case of most of the botanical herbs discussed in his *Colloquies*, mentions the Arabic, Portuguese, Greek/Roman, Malay, Canarese, and in some case Malayalam, Bengali, Gujarati and Sanskrit names for the same plant. For instance, in the case of the coconut, da Orta mentions that it is called *coco* in Portuguese, *jauzalindi* in Arabic (as mentioned by Avicenna), *nihor* in Malay and is referred to as *nael* by the Persians and Arabs. *Nael* could be a corrupted version of *Narikela*, the Sanskrit term for coconut.³⁸ There is also a similar elaboration of the other products of the coconut tree such as the leaf, coconut milk, water, sugar and so on in various languages.

³⁸ Garcia De Orta, *Colloquies*, Sixteenth Colloquy, 138-140.

In the case of *Hortus Malabaricus*, it seems that that the work follows roughly the same template as that of the *Colloquies*, but presents the information in a much more organised and systematic way. Taking the same case of coconut tree, (the *Hortus* mentions the name of the tree and not just the major product as in da Orta), it mentions that it is called *tenga* in Latin, *mado* in the language of the Brahmanas, *tengu* in Malayalam and also mentions the name in Arabic. Da Orta presents whatever information he has at hand about the plant under study, so whichever titles of the plant he knows, he mentions them and leaves out the titles in the languages he does not have information on. But in the case of *Hortus Malabaricus*, it mentions the titles of all the plants in the 12 volumes in four specific languages – Latin, Malayalam, Arabic and ‘brahmin language’ (*lingua brahmana antiqua*) which can either be Sanskrit or Konkani.

Hortus Malabaricus closely follows the European practice of taxonomy, nomenclature, classification and typology of the seventeenth century botanical practices of Europe. The practice of obtaining botanical specimens and collecting samples of drugs and studying their seasonality as well as genres and sub-genres, which is characteristic of *Hortus Malabaricus*, is also a European practice which can be traced back to da Orta. It can also be argued that in many ways da Orta’s work may have served as a template for Van Rhee’s team, even though a direct use of it as a model is not suggested. Da Orta also describes the properties of the medicinal herbs and the stories and history which he found to be noteworthy about the plants.³⁹ This format is adopted and followed in the *Hortus Malabaricus* even though no stories or any other cultural aspects of the plants findings mention in it. While da Orta concentrates only on the medicinal properties of the plants under discussion, *Hortus Malabaricus*, quite contrary to its popular perception as a medical work, describes medicinal, non-medicinal and commercial uses of the plants. It also has interesting discussions on how the drug is used by the indigenous communities. Another point of difference is that da Orta tries to filter the information from the subcontinent through the ideas of medicine put forth by Greco-Roman authorities. For instance, in the discussion on betel leaves, he attempts to understand whether it is hot or cold in consonance with the humoral theory of disease and health as put forth by the Galenic system of medicine.⁴⁰ No such attempt to refract the botanical elements through Galenic or other European systems of medicine is seen in *Hortus Malabaricus*.

It can also be argued that da Orta and Van Rhee’s works indicate the respective intentions of its authors and reflect the ‘stages’ of European expansionism on India’s south western coast. In the *Colloquios*, the emphasis is on the procuring of

³⁹ See for instance Garcia de Orta’s detailed exposition on pepper which includes not only detailed discussion on the types of pepper available in regions such as Malabar, Bengal and Java but also a curious story of Orta’s encounter with a druggist who did not know of the existence of two kinds of pepper, white and black in the Forty Sixth Colloquy.

⁴⁰ Garcia Da Orta, *Colloquies*, 479.

drugs and the discussion is on grading the efficacy of the same herbs/drugs from various places, hence it is clearly a book which narrates the story of mercantile and apothecary networks. Da Orta in his second colloquy, for instance, mentions the various regions in which aloe is cultivated and mentions that even though it grows in great abundance in Cambay and Bengal, the aloe from Socotra has the highest value.⁴¹ On the other hand, *Hortus Malabaricus* not only describes the techniques of cultivation of the plants, but also ways and means to effectively 'commercialise' their products, indicating an urge towards territorial expansion and the coming up of European settlements marked by botanical gardens in the colonies. Using the same example of the coconut, it describes the plant in great detail and the various stages of the development of the fruit, the cultivation of the plant and the preparation of arrack from the fruit.⁴²

It has been suggested that the *Hortus Malabaricus* represents a non-Brahmanic/non-European indigenous epistemology,⁴³ but I would like to argue here that *Hortus Malabaricus*, even though it depicts the Malabar flora quite well and included the local expertise of at least two traditions, does not follow either an Ayurvedic or an Ezhava epistemology. It can also be argued, in this context, that the general pattern of collection and categorisation of knowledge from the local contexts and its subsequent entry into the global flows of knowledge through the mediation of European agents ensured that the local knowledge structure was completely dismantled and the 'new' knowledge thus produced was divorced from its indigenous epistemological frameworks.

The Ayurvedic texts, be it the early foundational texts such as *Susruta Samhitā*, *Caraka Samhitā* or *Aṣṭāṅgahṛdaya* or *Aṣṭāṅgasamhitā* of the Vagbhatta tradition or later medieval texts such as *Bela Samhitā*, *Śārangadara Samhitā* or *Yogaratanakara* do not deal with the description of the herb; rather the herb would be described in connection with its use-value in treating the disease. For instance, *Caraka samhita* in the second chapter of its first *kanda* begins with a typology of root herbs, but both the classification and the identification of the herbs are in connection with the diseases.⁴⁴ For instance, in the treatment of conjunctivitis of the eye, *Caraka Samhitā* advises to use breast milk, coconut water or a paste made of *halaga* and *neem* to be applied on the eye, but there is no description of either coconut or *neem* or *halaga*. The disease, its symptoms, its treatment, the herbs to be used, the diet to be followed during the period of treatment, exercise, contact and patent care are discussed in detail, but there is no description of the plant. As in the case of *Caraka Samhitā*, in none of the other Ayurvedic texts is there a description

41 Garcia Da Orta, *Colloquyies*, 6.

42 Van Rheede, *Hortus Malabaricus*, Volume I, (Trees), 1-29.

43 Richard Grove, "Indigenous Knowledge and the Significance of South-West India for Portuguese and Dutch Constructions of Tropical Nature", 143.

44 *Caraka Samhitā*, Sutrastāna, Ch.2, Commentary and translation by Kashinath Sastri, (Varanasi: Chaukambha Sanskrit Academy), 1991.

of the plant in general or of its provenance. Hence finding an Ayurvedic episteme in *Hortus Malabaricus* can be clearly ruled out as the *Hortus* serves primarily as an illustrated index of South Indian plants.

Now to take a look at the Ezhava tradition; Ezhava folklore is replete with images of plants of various kinds with both medicinal and magical value, renowned and wandering physicians and their potions which brought both good and evil. Several of these can be seen in the *Vadakanpattukal* or bardic tradition that was in existence in Kerala during the medieval times and which is one of the oral traditions that is fairly well preserved and has been studied and recorded carefully in Kerala. The herbs described in the folklore, which is the only evidence of an Ezhava medical tradition, are heavily embedded in magico-ritual context. Many of the plants are deified and have a dimension of socio-religious significance attached to it. Many of the trees whose products are used for medical purposes, such as *neem*, *peepal* and *banyan* tree, are considered to be the abode of deities and the healing powers of their products are attributed to the power of the deities manifesting through them.

Whether a 'purely' medical tradition was distilled and practiced in a non-religio-cultural context is not discernable from the oral literature and it is highly improbable as the anthropological and ethnographical evidence of Ezhava tradition suggest that medicine was ever divorced from its religious context as in the case of Ayurveda. In the light of the above mentioned arguments, it can be argued that the knowledge of the indigenous plants preserved in the Ezhava tradition by the Ezhavas, who were traditionally a toddy tapping caste,⁴⁵ was exploited by the European endeavour as is suggested by the inclusion of Itti Achuden (who was an Ezhava physician) in the compilation of *Hortus Malabaricus*. It has to be mentioned here that the transfer of knowledge from the Ayurvedic and Ezhava traditions to the global channels did not mean that that the transfers followed or carried with them the local epistemes to the global networks, rather the European agents appropriated the medico-botanical knowledge of the indigenous system(s) and presented them in formats which were stripped of its socio-cultural appendages and was presented according to European traditions and formats.

An idea of a sort of collaborative approach among the local and global networks in knowledge production in the early modern period subsequent to the Scientific Revolution is another point to ponder over. The evidence discussed above is clearly suggestive of the same scenario; the important question that needs to be asked is that even though we have evidence of 'collaboration' or rather the inclusion of native expertise in the production of authoritative texts - any agency can be attrib-

⁴⁵ Toddy tapping refers to the extraction of an intoxicating drink called toddy from the coconut fruit. It was done by the Ezhavas and was considered as the traditional profession of the Ezhava caste group in the context of early medieval and medieval South India. The close association with plants (especially trees) might be owing to the familiarity with flora which their profession required.

uted to the local level. What was happening on the ground was the dislocation and disembodiment of herbs from not only their natural but also their socio-cultural contexts and ‘transplantation’ to newer and imperial contexts under the aegis of European colonialism. Hence the history of plant transfers in the context of imperial networks, be it through the Dutch trading companies’ knowledge networks or the Iberian imperial and Christian networks, remains a brilliant example of the human pursuit of knowledge albeit it also being a story of unequal exchange.