

Medicine and the Spice Trade



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Theory and Methodology for the Study of the Ancient World (HPAH7011)



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Introduction

Medicine and spices in the Roman Empire

- Increasing role for “spices” in medicaments by first century CE.
- Humoral theory, diet and spices.
 - Generate heat, aid digestion, purge the system.
- Dioscorides (*De Materia Medica*), Pliny the Elder (*Naturalis Historia*), Celsus (*De Medicina*) and Galen (numerous works, including *On the Properties of Food Stuffs*).

Structure of the paper

- 1) wider scholarly interest in the study of the Indo-Mediterranean trade in general, and the spice trade in particular.
- 2) Methodological approaches.
- 3) Cinnamon as a case study.

Contextual background and scholarly developments

- Fifteenth to sixteenth centuries, print manuscripts of the *Periplus Maris Erythraei* (henceforth *Periplus*); Ptolemy's *Geographia*; *Tabula Peutingeriana* (Peutinger Table).
- Search for spices, eventual acquisition of European territorial enclaves:
 - 19th century – British in India and Roman numismatics.
 - European exploration of the Red Sea and Eastern Desert, from Napoleonic era.



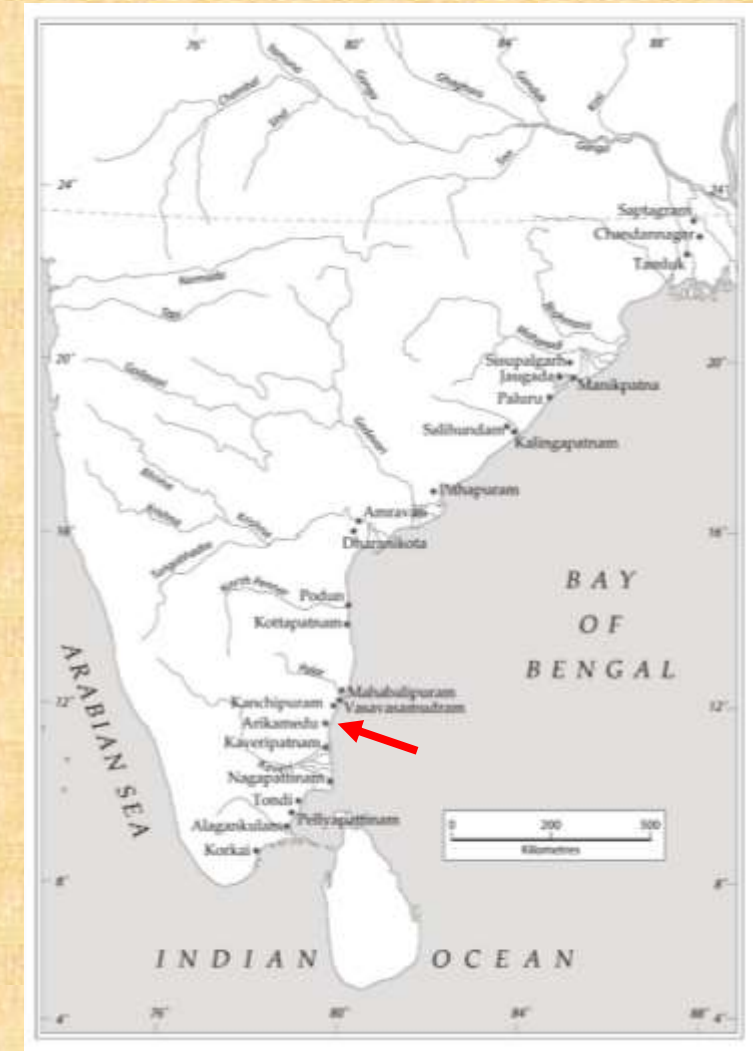
Abraham Ortelius (sixteenth century), *Theatrum Orbis Terrarum*, National Library of Wales

Developments in the late 20th to 21st centuries – archaeological and archaeobotanical discoveries

- Excavations by Wheeler (1945) and then Casal (1947-1950) at Arikamedu (subsequently by Begley in late 80s to early 90s).
- Miller (1969) *The Spice Trade of the Roman Empire 29 B.C. to A.D. 641*.
- Significant archaeological work from the late-70s to early 80s onwards. Important sites include Quseir al-Qadim, Berenike, Qana', Khor Rori and Pattanam.



Map from Cobb (2019)



Map from H. P. Ray (2019)

From Indo-Roman to wider Indian Ocean trade

- Shift away from seeing “Romans” as a/the dominant force in the (western) Indian Ocean trade.
 - Though note Gurukkal (2013; 2016).
- Revised chronological assumptions, e.g. early links between Arikamedu, Khor Rori and Berenike (Avanzini: 2016).
- Models for studying Ancient Indian Ocean trade:
 - World systems theory (Fitzpatrick: 2011).
 - “Globalisation” or “oikoumenisation” (Seland: 2008).
 - “Food globalisation” (Van der Veen and Morales: 2017).

Figure 1. Ports, trade centres and Buddhist settlements along the east coast of India.

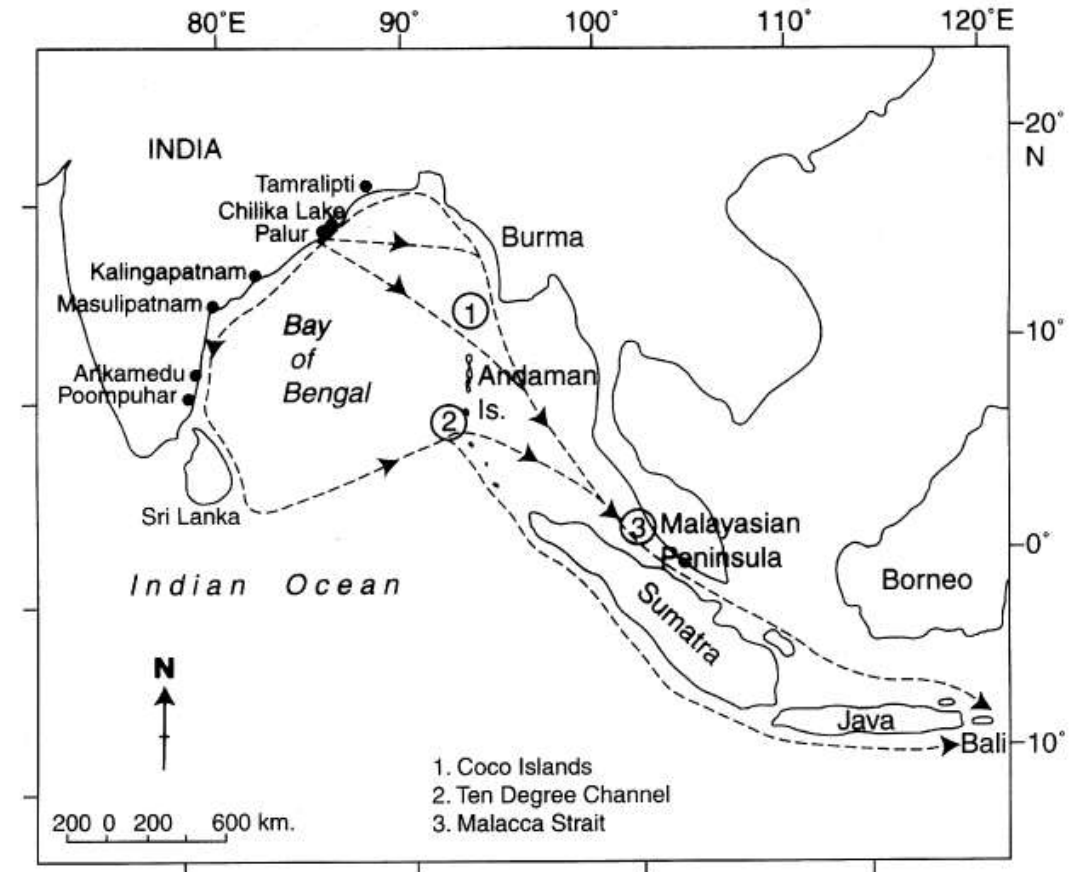


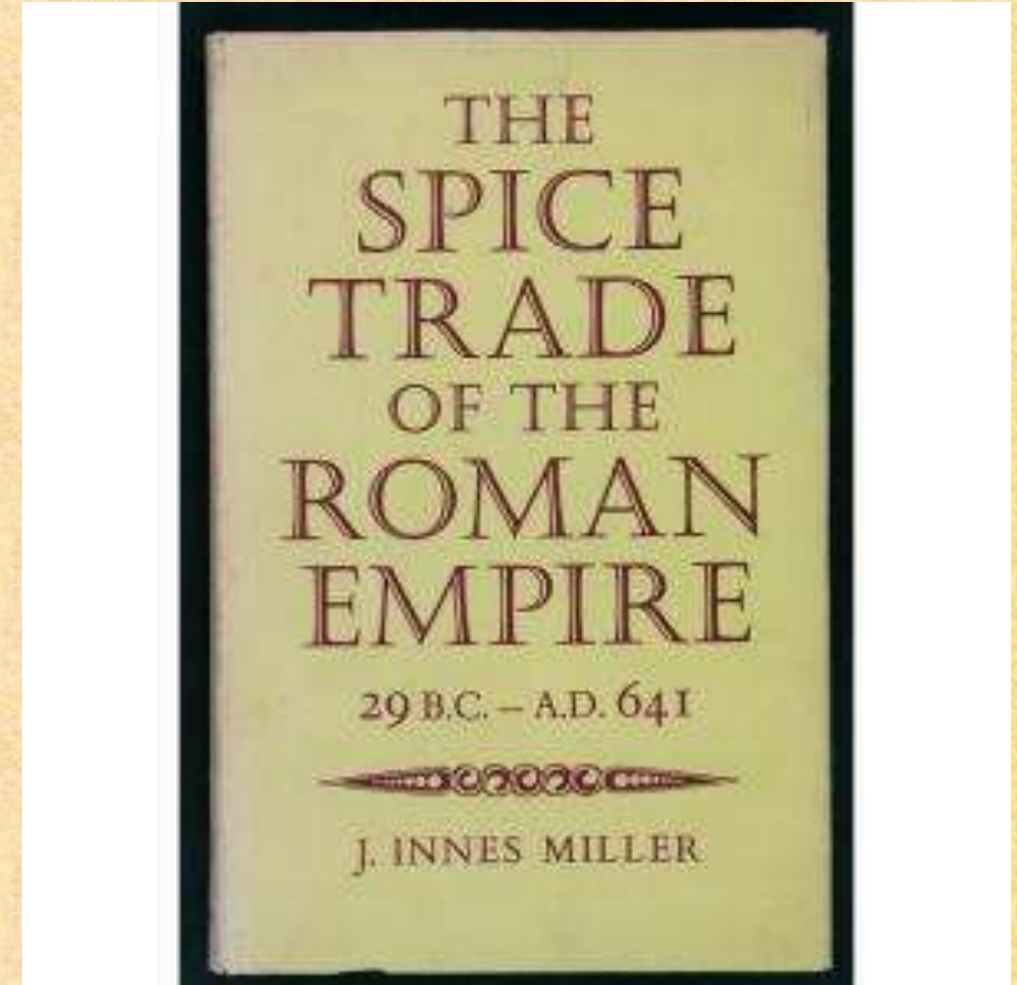
Figure 2. Sea routes from Orissa to Andaman and Nicobar Islands and Southeast Asian countries.

Map from Tripathi and Raut (2006)

Approaching the Evidence

Approaching the evidence: textual studies

- Potential problems of equating modern scientific name with ancient.
- Textual approaches: examination of description provided in sources; etymological study – comparison of Greek and Roman terms with others (e.g. from Sanskrit, Prakrit, Tamil, etc.).
- Challenges of identify origin – confusion/disputes in the sources; complexity of trade networks; variations in plant / plant parts (stems, leaves, fruits, etc.).
- Label “Indian” in the sources.



Approaching the evidence: archaeobotany

- Survival in hyperarid or waterlogged (anaerobic) conditions, and the processes of mineralisation.
- Find at Berenike and QaQ (Myos Hormos) largely surviving through desiccation (and some charred finds).
- Bias towards more compact, dry parts of plants (seeds, nutshells, fruit stones, woody fragments).
- Spillage – quantity of finds at indicator of popularity, value, etc.

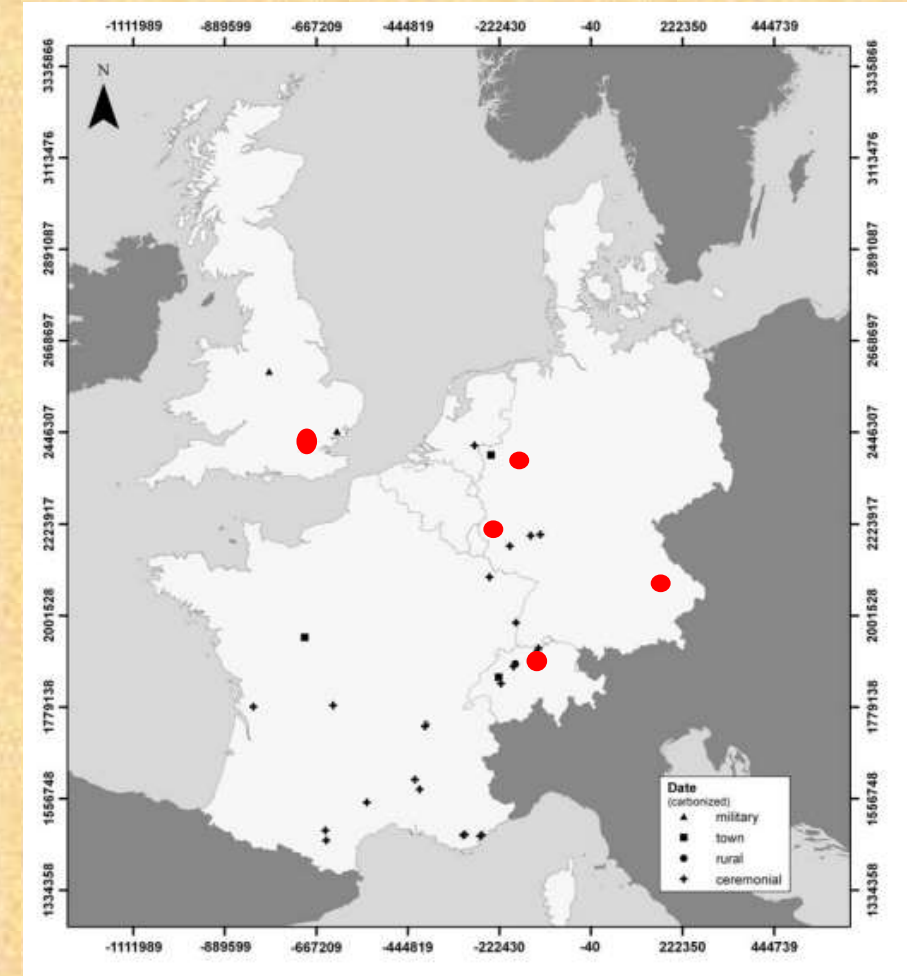
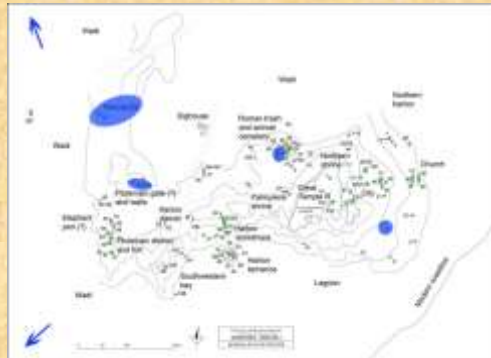


Image from Cappers (2006)

Image from Livarda (2011)

Approaching the evidence: efficacy

- Graeco-Roman perceptions of effectiveness (cultural factors, can get impressionistic sense particularly from the written evidence).
- “Scientific” approach to efficacy, e.g. Manchester University assessment of Pharaonic era Egyptian plant-based medicines (David 2018); attempts to assess the effectiveness of the ingredients in various Mithridatium and Theriac recipes (Totelin 2004: 14).
- Preservative qualities and antimicrobial properties in many spices – Van der Veen (2011).
- More medical usage, ginger and rice – contrast black pepper, ubiquitous popularity in cuisine to judge from the so-called cookbook of “Apicius” (see also Pliny *HN* 12.14.29).

Approaching the evidence: popularity

Black peppercorn finds

- Berenike – in the thousands, including in storage jar in Great Temple (c. 7.5 kg)
- Myos Hormos – 71 in Roman era deposits
- Qasr Ibrim (now on an island in Lake Nasser)
- Mons Claudianus
- Oberaden (centurion's latrine)
- Neuss-Novasun (military fort)
- Mainz and Vindonissa (military site and trade centre)
- Biesheim-Kunheim (near a limes garrison)
- Hessen (in a *vicus* well)
- Straubing (harbour area)
- Londinium, Southwark (administrative, trading area)
- colonia Aelia Mursa (Osijek), Croatia (early second century CE septic pit)
- Pompeii (House of Hercules' Wedding and the House of the Vestals)
- Herculaneum (Cardo V sewer)
- Lahr-Dinglingen

Other written and material evidence

- Various literary works, including those of Martial and Persius.
- *Tab. Vindol.* ii.184.
- *Piperatoria*, Hoxne, Suffolk (early fifth century).
 - See also similar finds in Bulgaria (Nocolaevo, Late Antique), France (Vienne and Chaourse, third-century hoards), and possibly at Sidon (Lebanon).
- Myos Hormos – (Bagnall 1986—ostrakon no. 28).
- *O. Did.* 327, 328, 364, 399.

Income chart: Edict of Maximum Prices (301 CE)

Occupation	Income (250 days working year + subsidies) and Silver Equivalent	Surplus income after deductions for barebones (BB) and respectability (RB) baskets (includes cost of wife and two children)	Percentage of surplus income required to buy a scruple (1.12g) of black pepper	Percentage of surplus income required to buy a uncia (27g) of black pepper	Percentage of surplus income required to buy a libra (323g) of black pepper
Day labourer	9031 dc = 289g of silver	844 dc (BB); not possible with RB	0.33% (BB); not possible with RB	7.9% (BB); not possible with RB	94.8% (BB); not possible with RB
Baker; blacksmith; stonemason, and carpenter	15,275 dc = 477.4g of silver	6,731.25	0.04% (BB); not possible with RB	1% (BB); not possible with RB	12% (BB); not possible with RB
Shipwright for sea-vessels	17,775 dc = 555.5g of silver	9171.88 (BB); 1221.88 (RB)	0.03% (BB); 0.22% (RB)	0.73%; 5.5% (RB)	8.7% (BB); 65.5% (RB)
Terracotta figurine maker	21,525 dc = 672.7g of silver	12,834.38 (BB); 4,884.38 (RB)	0.02% (BB); 0.06% (RB)	0.52% (BB); 1.4%	6.2% (BB); 16.4% (RB)
Mediocre scribe (writing 500 lines a day)	25,000 dc = 781.3g of silver (no subsidy)	16,228.13 (BB); 8,278.13 (RB)	0.017% (BB); 0.33% (RB)	0.41% (BB); 0.8% (RB)	4.9% (BB); 9.7% (RB)
Greek and Latin literature teacher (25 pupils)	41,750 dc = 1.3kg of silver (no subsidy)	32,437.5 (BB); 24,487.5 (RB)	0.009% (BB); 0.011% (RB)	0.2% (BB); 0.27% (RB)	2.5% (BB); 3.3% (RB)

All percentages have been rounded to the nearest 100th of a percent when dealing with sums less than 1% or to the nearest 10th of a percent with sums above 1%
dc = denarii communes; BB = barebones basket; RB = respectability basket; Silver equivalences for value of denarii communes are provided – 1 denarius communis = 0.032g of silver

Cinnamon: a case study

Cinnamon: a case study – Identification and origin

- Cinnamon we know today (in the UK) is from the species *Cinnamomum verum* (syn. *C. zeylanicum*).
- Varying views on whether κιννάμωμον (Greek), *cinnamomum* (Latin) was the same as today – against (De Romanis 1996); for Casson (1989); cinnamon from Southeast Asia (Miller 1969).
- Cinnamon from nests - Herodotus 3.111; cinnamon from Arabia Felix – Diod. Sic. 3.46.1-5; Ovid *Fasti* 3.731, *Met.* 10.308, 15.398-9; Prop. 3.13.8; Dioscorides *MM* 1.12; from East Africa – Pliny *HN* 12.42.85; from southern India – Strabo *Geog.* 15.1.22.



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Cinnamon: a case study – Trade Routes

- Miller's (1969) "cinnamon route" - Pliny *HN* 12.42.85-94.
 - See more recently Chami (1999); Pearce and Pearce (2010).
 - Lytle (2016).
- Idea met with scepticism – Raschke (1978); Nutton (1985).
- Certainly evidence for first millennium CE links, but more likely sporadic migration rather than trade.
- Traces of cinnamaldehyde in early Iron Age Phoenician flasks found in Israel.

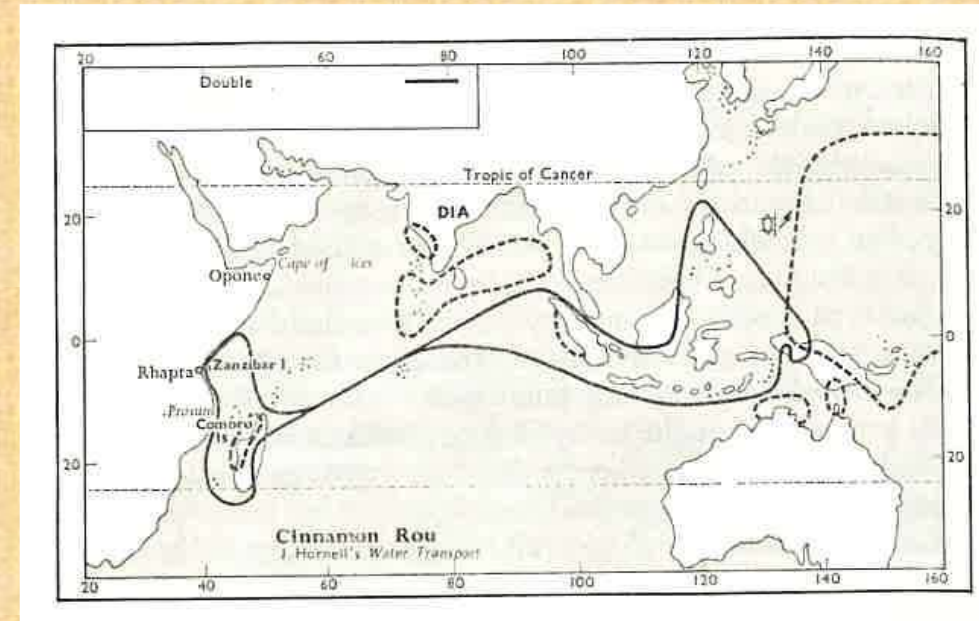


Image from Miller (1969).

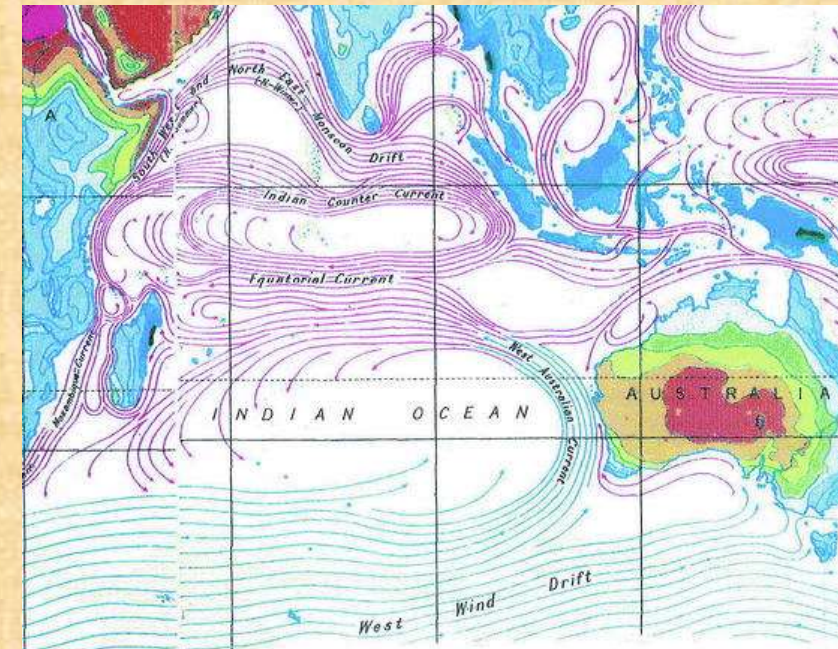


Image from Pearce and Pearce (2010).

Cinnamon: a case study – uses and efficacy

Ancient medical uses of “cinnamon”

- Celsus: “cinnamon” used in various medicaments relating to skin, mouth, ears and eyes, intestinal problems and liver inflammation.
- Dioscorides: counteracting intestinal inflammation and as antidotes against venomous bites; also face, coughs, kidney condition, to help break wind and calm the stomach.
- Galen *On Avoiding Distress* 3.

Modern medical uses of *C. verum*.

- Employed in medicine for its carminative function, and has preservative and antioxidant qualities.
- A number of countries in Europe and Asia include cinnamon oil and bark among their pharmacopoeias.
- Ayurveda medicine.



Image from iayur.com

Cinnamon: a case study – Price and popularity

Non-medical uses

- Perfume: Martial (*Epigrams* 3.63, 6.55).
- Religious dedications: Ovid (*Fasti*); Pliny (*HN* 12.42.19).
- Funerary rites: Persius (*Satires* 3 lines 33-37, and 103-5); Martial (*Epigrams* 11.54); Plutarch (*Sulla* 38.3).

Price (c. 70s CE Rome)

- Pliny – in former times supposedly 1,000 denarii per libra (“barbarian” burning of groves raising it by another 50%).
- Although by Pliny’s day it was 10 denarii per libra.
- 2.5 times the cost of black pepper, but only 75% of the cost of long pepper, and quite a bit less than the 60 denarii for the leaves of malabathrum.

Summary

- Written evidence can give us an indication of the cultural and economic value, uses of cinnamon, and perceptions of efficacy.
- Identity and origin are still issues open to contentious debate.
- Potential future archaeobotanical finds may provide useful information that can contribute to these issues, but this remains to be seen.
 - Biases of the preservation process.
- Speculative assumptions – “cinnamon wood” - *Cinnamosma fragrans*? – “cinnamon” perhaps *c. verum* or from SE Asia species?
- Cinnamon route theory remains questionable, and perhaps unnecessary.

Thank you for listening.
Any questions?