

PERIPLUS MARIS ERYTHRAEI 36: TEAK, NOT SANDALWOOD

In the literature on Rome's trade with the Far East, it is confidently stated that sandalwood and teak figured among the imports from India. The evidence offered is a passage from *Per.* 36. As it happens, the words in the passage taken to refer to sandalwood actually refer to teak, and those taken to refer to teak have nothing to do with it.

In 36 the author deals with the trading possibilities at Omana, a port on the south shore of what is today Iran, a six-day sail east of the Strait of Hormuz.¹ It was a transshipment point for products from Barygaza (modern Broach), the major seaport of northwest India. These included ξύλων σαγαλινὸ καὶ δοκῶν καὶ κεράτων καὶ φαλάγγων σασαμίνων καὶ ἐβενίνων.

Three kinds of wood are named here, of which only the last, unmistakably ebony, has escaped emenders' efforts at improvement. The one just before it puzzled commentators,² and some willingly adopted J. Stuck's alteration (in his edition of 1577) to σησαμίνων on the basis of a presumed connection with σήσαμον.³ No emendation is required. This is the wood of the *Dalbergia sisso*, which grows widely in India and produces fine timber for both construction and cabinet work. The name in Hindustani and other major dialects is *sīsū*, *shīsham*, or the like. It was borrowed by Arabic in the form *sāsam* and, it would appear, by Greek as well.⁴

The third kind of wood is the mysterious σαγαλινὸ. Back in 1629 Salmasius offered the emendation *σανταλίνων*. *Santalina ligna*, he asserted, would be sandalwood, the adjective deriving from the Sanskrit name for the wood, *chandana*.⁵ In the three and a half centuries that have elapsed since then no one has ever challenged the suggestion: it has made its way into all texts and translations of the *Periplus*⁶ and all accounts of Rome's trade with India.⁷ One of the factors strongly in its support was the feeling

¹ A sail of six days east of the strait would place Omana near the Iran–Pakistan border. Some, following Pliny, *HN* 6. 149, place it in Oman on the Arabian side of the strait; see G. Hourani, *Arab Seafaring* (Princeton, 1951), pp. 16–17 and, for earlier upholders of this view, those cited by A. Hermann in *RE* s.v. 'Omana' (1942).

² W. Vincent, *The Commerce and Navigation of the Ancients in the Indian Ocean* (London, 1807), ii. 378–9; C. Müller in *Geographi Graeci minores* (Paris, 1853), i. 285; B. Fabricius, *Der Periplus des Erythraïschen Meeres von einem Unbekannten* (Leipzig, 1883), p. 75 n. 6.

³ LSJ s.v. *σησάμινος* perpetuates the mistaken connection.

⁴ G. Watt, *A Dictionary of the Economic Products of India* (Calcutta, 1890), iii. 13–15; H. Yule and A. Burnell, *Hobson-Jobson* (London, 1903²), p. 842. Cf. E. Warmington, *The Commerce between the Roman Empire and India* (Cambridge, 1928), p. 214. The word is spelled *σησ-* in *Cosmas Indicopleustes* 11. 445 D and *Dioscorides* 1. 98, and this is the spelling adopted by Warmington as well as by H. Frisk, editor of the latest and only critical edition of the *Periplus* (*Le Périple de la mer Érythrée*, Göteborgs Högskolas Årsskrift 33 [Göteborg, 1927]).

⁵ C. Salmasius, *Plinianae exercitationes in Caii Iulii Solini Polyhistora* (Paris, 1629), ii. 1032. See the texts of Müller, Fabricius, Frisk. For translations see Vincent, *op. cit.* p. 378; J. McCrindle, *The Commerce and Navigation of the Erythraean Sea* (Calcutta, 1879), p. 105; W. Schoff, *The Periplus of the Erythraean Sea* (New York, 1912), pp. 36, 152; G. Huntingford, *The Periplus of the Erythraean Sea* (London, 1980; Hakluyt Society, Second Series 151) p. 40.

⁷ Wecker in *RE* s.v. 'India' 1302 (1916); A. Schmidt, *Drogen und Drogenhandel im Altertum* (Leipzig, 1927), p. 95; Warmington, *op. cit.* p. 213; F. Cumont in *CAH* xi. 632 (1936); Hermann, *ibid.*; M. Wheeler, *Rome Beyond the Imperial Frontiers* (London, 1954), p. 118; J. Miller, *The Spice Trade of the Roman Empire* (Oxford, 1969), pp. 61, 86–7.

that sandalwood, an important Indian product today, must surely have been so in ancient times as well.

Yet the emendation on the basis of a presumed connection with Skt. *chandana* is indefensible. None of the consonantal sounds corresponds, least of all the initial one. We know what form the Sanskrit word took in Greek and it is not **σάνταλον* or something similar but precisely what we would expect, *τζανδάνα*. This is the spelling it has in Cosmas Indicopleustes 11. 445 D, where sandalwood is listed among Ceylon's imports. Let us therefore eliminate Salmasius' creation from the text – and from Greek lexicons⁸ – and eliminate sandalwood from the list of India's exports to the west in Roman Imperial times. Our earliest evidence for it is Cosmas, in other words mid-sixth century A.D.

Next, teak. This has profited from the same feeling as sandalwood: such a valuable product, one of India's key exports in recent centuries, surely must have figured in her trade in ancient times; mentioned nowhere else in the *Periplus*, surely it must be in this list of woods shipped out of Barygaza via Omana. The textual legerdemain to produce teak was performed by Fabricius on the words *δοκῶν καὶ κεράτων*. The last had all along caused concern. Müller, though he translated it 'cornuum', in his commentary expressed his doubts, since the sense did not at all suit the context.⁹ Fabricius, taking the bull by the horns so to speak, emended to *δοκῶν κερατεανῶν*. The adjective was his own creation, fashioned by him from *κερατέα* 'carob-tree'. A *hapax* but a perfectly plausible one. To it, however, he gave a meaning of his own creation, not, as we would expect '(beams) of carob-wood', but '(beams) of teak wood'.¹⁰ This conjecture has had the effect of solidly establishing teak in the list of India's exports to the west.¹¹ Luckily it belongs there.

The *Periplus*' *σαγαλινό*, we noted above, has nothing to do with Skt. *chandana* 'sandalwood'. What, then, is it connected with? The answer was supplied almost a century ago and by two different scholars working totally independently. The Sanskrit for teak is *śāka*. Later forms show a change of *k* to *g*, as in the Hindustani word for teak *sāgūn* or the Marathi *sāg*. There is even in Marathi an adjective *sāgalī* 'of teak'.¹² The passage we are dealing with ends in the words *φαλάγγων σασαμίνων καὶ ἔβενίνων* 'sissoo and ebony logs'; by a minor and easily justifiable emendation we can make it begin with *ξύλων σαγαλίνων* 'teak wood'.¹³

⁸ e.g. LSJ s.v. *σαγάλινος*. The *σάνταλον* cited by Warmington (op. cit. p. 215) and Miller (op. cit. p. 62, where it is attributed to the *Periplus*) is unattested in ancient times; cf. D. Dimitracos, *Μέγα λεξικὸν τῆς Ἑλληνικῆς γλώσσης* (Athens, 1933–52) s.v.

⁹ Müller, op. cit. i. 285.

¹⁰ Fabricius, op. cit. p. 75: 'habe ich *κερατεανῶν* (eigentlich vom Johannisbrotbaume gebräuchlich, den die Geoponika und Strabon erwähnen) geschrieben, verstehe aber den Teakbaum darunter'. Hourani (op. cit. p. 90), aware that the word for 'teak' nowhere appears in *Per.* 36, assumed that Schoff's translation 'timbers of teakwood' arose 'by a legitimate inference'; actually Schoff was translating Fabricius' text (cf. Schoff, p. 21: 'The present translation is based on Müller's text, adopting most of Fabricius' verbal emendations').

¹¹ Warmington, op. cit. p. 213; M. Charlesworth, *Trade Routes and Commerce of the Roman Empire* (Cambridge, 1926), p. 67; Hourani, op. cit. p. 90; Wheeler, op. cit. p. 118; N. Lewis, 'On Timber and Nile Shipping', *Transactions of the American Philological Association* 91 (1960), 137–41 at 137–8; R. Jairazbhoy, *Foreign Influence in Ancient India* (Bombay, 1963), p. 151; Miller, op. cit., p. 86; M. Raschke, *Aufstieg u. Niedergang d. römischen Welt*, ii. 9. 2 (Berlin, 1978), p. 1016, n. 1510.

¹² The explanation was first offered by H. Yule, s.v. 'Teak' in Yule–Burnell, op. cit. (first edition, 1886), who cites the Marathi forms. I. Löw, citing the Aramaic loanword *šāgā*, came to the same conclusion in 1901 (*Berichte der Deutschen botanischen Gesellschaft* xix. 3, reprinted in his *Die Flora der Juden* [Vienna and Leipzig, 1924], iii. 489–90).

¹³ Theophrastus (*Hist. Pl.* 5. 4. 7) tells of the reported existence on Tylos (Bahrein) of a very special 'wood from which they build their ships (or boats; the Greek word is *ploia*) and which

What about the troublesome *κεράτων*? Now *keras* may mean 'sailyard' as well as 'horn'.¹⁴ Greek sailyards were commonly made of two saplings or two long branches lashed together at the thicker ends.¹⁵ It is easy to conceive of the word being taken over by traders as their term for pieces of timber of that shape, like logs but more slender. The whole passage, then, can be translated 'teak wood as well as beams and saplings and logs of sissoo and ebony'. What form the teak was shipped in, we are not told; the sissoo and ebony came in three forms: logs that had been adzed into beams, regular logs, and saplings or large branches.

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LIONEL CASSON

is well-nigh free from decay in sea-water, for, kept immersed, it will last over 200 years'. Pliny, *HN* 16. 221, supplies roughly the same information. Some think that teak is meant, since it has the characteristic described and is widely used in boatbuilding (A. Hort in the Loeb Classical Library translation of Theophrastus; H. Rackham in the Loeb translation of Pliny); however, since no teak grows on Bahrein, they assume it must have been imported, as *Per.* 36 reveals it was at Omana (Hourani, *op. cit.* p. 90; cf. H. Bretzl, *Botanische Forschungen des Alexanderzuges* [Leipzig, 1903], p. 132). Others hold that Theophrastus is referring to Bahrein's native mangrove, *Avicennia officinalis*, which, like teak, is remarkably resistant to water (Bretzl, pp. 132–3, followed by O. Stein in *RE* s.v. 'Tylos' 1733 [1948] and J. André in the Budé edition of Pliny, *HN* 16 [p. 177; 1962]). *Avicennia officinalis*, however, like other mangroves, is not at all suitable for ship-timber, being too brittle; in India, for example, it is used solely for firewood (Watt, *op. cit.* i. 361). We would have to assume that by *ploia* Theophrastus means only canoes and other very small craft (cf. Bretzl, p. 39). Even so, this seems to suit his words better than assuming he is talking about an imported product.

¹⁴ L. Casson, *Ships and Seamanship in the Ancient World* (Princeton, 1974), p. 232 n. 35.

¹⁵ Casson, *op. cit.* p. 232.