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Title Letter to the Editor

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Abstract A critique of Warren Aston's "Identifying Our Best Candidate for Nephi's Bountiful," published in volume 17/1-2 of the *Journal of the Book of Mormon and Restoration Scripture*.

Letter to the Editor

Dear Editor,

I read with interest Warren Aston's "Identifying Our Best Candidate for Nephi's Bountiful" published in volume 17/1–2 of the *Journal of the Book of Mormon and Restoration Scripture*. I appreciate Aston's passion for the research and am impressed by the level of expertise he has gained for the avocation. As an archaeobotanist who has studied the flora of Dhofar and made extensive field collections in the region, I would like to offer a differing perspective on a few points made by Aston in his article.

Dhofar currently supports approximately 775 species of plants, which represents about 65 percent of the total floristic diversity of Oman. Naturally, many of these taxa have been introduced since Nephi's time. Being ecologically isolated, the region has a surprisingly high degree of endemism (taxa unique to the region). Six to seven percent, about 50 taxa among the local flora, grow only in Dhofar. There are even two genera, *Cibirhiza* (Asclepiadaceae) and *Dhofaria* (Capparaceae), each containing a single species, that are exclusive to Dhofar. Two other genera, *Bentia* (Acanthaceae) and *Xerotia* (Caryophyllaceae), are restricted to Dhofar and its adjoining areas in Yemen. These four genera, plus one other, *Centaurothamnus* (Asteraceae), which is restricted to Yemen, comprise the only endemic plant genera in the whole of Arabia.

While most of Dhofar is dominated by desert vegetation, along the coastal region a unique combination of climate and topography give rise to several distinct vegetative zones: (1) the Coastal Plain, which is characterized as a semi-desert grassland with widely scattered acacia trees; (2) the Escarpment Mountains, dominated by a deciduous tropical forest; (3) the Summit Plateau, which supports a narrow band of savanna; and (4) the Interior Desert, which supports a relatively sparse cover of desert adapted trees, shrubs, and herbs.¹

Aston feels that the larger species of trees indigenous to the Coastal Plain and Escarpment Mountains zones of Dhofar would have provided adequate timber for ship building, or perhaps as

he suggests, raft building. I am not as convinced of this conclusion as is Aston. The largest tree of Dhofar, the Vast Fig (*Ficus vasta*), along with the other large indigenous fig taxa, *F. sycomorus*, *F. cordata salicifolia*, and *F. lutea*, all produce a wood that is too soft, heavy, and porous to withstand the rigors of a transoceanic crossing, though the wood is suitable and has been used in the Dhofar region for building ship infrastructure not exposed to the elements.² There are a few *Acaia* taxa that produce a harder wood, such as *Acaia nilotica*, *A. senegal*, *A. etbaica*, and *A. latea*, but only *A. nilotica* and *A. senegal* reach any appreciable size, and they, like their smaller relatives, produce a wood that is too branched and gnarled for large raft logs or ship planks and timbers. The branches of some *Acacia* taxa could and have been used, however, for building ship ribs and infrastructures.³ Other large Dhofar taxa are equally as unsuitable for the task of providing planking for ships or logs for a large raft. The very rare Baobab (*Adansonia digitata*) produces a wood far too soft for the task. The endemic *Anogeissus dhofarica* is too branched and small to be of use as is the Christ-thorn (*Ziziphus spinachristi*) and the legume *Delonix elata*. The Tamarind (*Tamarindus indica*) is a larger tree that produces a better grade of wood than most of the above, but it is a native of tropical Africa that may not have been introduced until after Lehi's family left the area.⁴ Moreover, while Tamarind wood is prized for tool- and cabinet making, it has not historically been used for shipbuilding.⁵ In the words of maritime historian Dionisius A. Agius, "Timber for shipbuilding was always lacking in the Arabian/Persian Gulf and shipwrights had to look for good wood to build larger vessels."⁶ Another maritime historian, George Faldo Hourani, echoes Agius's opinions, "Arabia does not and never did produce wood suitable for building strong seagoing ships."⁷

Accordingly, I would suggest that while it may be tenable, especially with the hand of God involved, to construct a ship or raft using only wood from trees indigenous to Dhofar, it is equally if not more tenable that Nephi used imported wood,

such as teak from India, which I believe, contrary to Aston, was likely available at that time, to construct the bulk of the vessel. Agius notes that India has been the supplier of such wood from antiquity.⁸ Beginning in the third century BC, Khor Rori was a port of extensive trade with India,⁹ a trade that must have existed before then. I note that Nephi's account of the construction does not mention the harvesting of trees, only that they "did work timbers of curious workmanship" (1 Nephi 18:1), perhaps because the timbers were imported and ready to be shaped.

Aston also suggests that his contemporary photos of "tall native hardwood trees" growing in Khor Kharfot lend support to his conclusion that the area is the most likely candidate for the site of the ship construction. I would suggest caution in accepting this conclusion for two reasons. First, the adjectives *tall*, *native*, and *hardwood* are rather subjective and in many cases questionable. I personally would not use such terms to describe the trees now growing in the area, and honestly would be very nervous about trusting my life to any watercraft constructed solely of such wood for a transoceanic crossing. Second, contemporary photos may not accurately reflect the vegetation at the time of Nephi at Khor Kharfot or at other potential sites for Nephi's Bountiful. Factors such as climatic changes (even small ones), human impact, grazing, and the influences of pathogens can dramatically influence the boundaries of vegetative zones and the make-up of plant communities over time. While today the relatively isolated Khor Kharfot is arguably more "fertile" than some of the other sites suggested by researchers for Nephi's Bountiful, it is tenable and in fact likely that in Nephi's day the other more impacted sites were more "fertile" than they are today. Palynological research at Sumhumram indicates that Khor Rori once supported "lush vegetation" and many more species of plants than found there today. Remarkably the researchers found evidence of wheat (*Triticum*) and barley (*Hordeum*) cultivation between the third and first centuries BC.¹⁰

Finally, Aston asserts that "there is no evidence of shipbuilding in southern Oman at any time," yet Agius describes the shipbuilding he observed in Dhofar and reports facts he learned from an interview he had with a modern Dhofari shipwright.¹¹ Aston cites an archaeology report of excavations at Khor Rori for the information from which he apparently concluded that "there is no evidence of

ship building in southern Oman at any time." I have carefully reviewed the report and cannot understand how he draws the conclusion. The report itself makes no such claim and in fact is extremely tentative in nature. Moreover the report speculates that shipping and trade was conducted in the area long before Khor Rori functioned as a port, which it dates, based on the findings at the associated city Sumhumram, between the third century BC and fifth century AD.¹² Sumerian texts indicate that seafaring and trade between Arabian and Persian gulf ports existed as early as the third millennium BC.¹³ I find it unlikely that a seafaring people living on the sea coast, engaged in shipping and trading, would not build and maintain watercraft.

Consequently, though I am appreciative of Aston's work on the topic, I do not find all of his conclusions convincing.

—Terry Ball

Notes

1. For a more detailed review of Dhofar flora see T. B. Ball., G. I. Baird, A. al-Farsi, S. A. Ghazanfar, and L. A. Woolstenhulme, "A Survey of Phytoliths Produced by the Vegetation of Dhofar, Oman," in *Plants, People and Places: Recent Studies in Phytolith Analysis* (Oxford: Oxbow, 2007), 29–40; A. G. Miller and M. Morris, *Plants of Dhofar, The Southern Region of Oman, Traditional, Economic and Medicinal Uses* (Muscat: Office of The Adviser for Conservation of the Environment, Diwan of Royal Court, Sultanate of Oman, 1988); S. A. Ghazanfar, *Flora of Oman*, vols. 1, 2 (Meise, Belgium: National Botanic Garden, 2003, 2007).
2. Dionisius A. Agius, *Seafaring in the Arabian Gulf and Oman* (London: Kegan Paul, 2005), 31–32.
3. Agius, *Seafaring in the Arabian Gulf*, 32–33.
4. Though hardly conclusive, the fact that no Tamarind pollen was recovered by palynologists surveying Sumhumram, suggests the taxa may not have reached Dhofar until after the fifth century AD. See Marta Mariotti Lippi, Roberto Becattini, and Tiziana Gonnelli, "Archaeopalynology at Sumhuram," in *A Port in Arabia between Rome and the Indian Ocean* (3rd c. BC – 5th c. AD): *Khor Rori Report 2*, ed. Alessandra Avanzini (Rome: L'Erma di Bretschneider, 2008), 549–61.
5. For more on the trees of Dhofar and their uses see Shahina A. Ghazanfar, *Trees of Oman* (Muscat, Oman: Ministry of Regional Municipalities and Environment, 1997); Miller, & Morris, *Plants of Dhofar*.
6. Agius, *Seafaring in the Arabian Gulf*, 29.
7. George F. Hourani, *Arab Seafaring in the Indian Ocean in Ancient and Early Medieval Times* (Princeton, NJ: Princeton University Press, 1951), 5.
8. Agius, *Seafaring in the Arabian Gulf*, 29.
9. Avanzini, foreword to *A Port in Arabia*, 10.
10. Lippi et al., "Archaeopalynology at Sumhuram," 549–61.
11. Agius, *Seafaring in the Arabian Gulf*, 31–33.
12. Avanzini, "Notes for a History of Sumhuram and a new inscription of Yashhuril," in *A Port in Arabia*, 610–41.
13. Agius, *Seafaring in the Arabian Gulf*, 69, 93.