

Review

SURESHKUMAR MUTHUKUMARAN, *THE TROPICAL TURN: AGRICULTURAL INNOVATION IN THE ANCIENT MIDDLE EAST AND THE MEDITERRANEAN*.

Oakland, CA: University of California Press, 2023. Pp. xix + 294, illus., maps. ISBN 9780520390836 (hbk) £80.00; 9780520390843 (pbk) £30.00; 9780520390850 e-book.

Sureshkumar Muthukumarán's study represents a considerable undertaking. M.'s aims are two-fold: first, to provide 'an ecological reading of long-distance connectivity' (6) between South Asia and the Mediterranean between c. 3500 B.C.E. and 100 C.E.; second, to respond to earlier studies, which analysed the westward movement of crops from India based on agency, chronology and trade routes.

The first chapter provides a historical context and suggests that there were important, lasting, and discernible links between the Mediterranean and South Asia as early as c. 4000 B.C.E. Considering not only trade routes, but also various methods of land and water transportation (18–31), M. proposes that competing networks, based on such variables as political stability and economic opportunism (e.g. the Lapis Lazuli roads), were fundamental to the connections between South Asia and the Mediterranean. These led to the spread of the plant species studied in the remainder of the volume.

Ch. 2 examines the spread of Old World cotton, acknowledging one species' (*Gossypium herbaceum*) presence in Nubia, Egypt and Libya between c. 100 B.C.E. and 500 C.E., before examining the spread of its sister species, *Gossypium arboreum*, or tree cotton (68). Following the evidence for the latter westwards from Mesopotamia into the Mediterranean, M. suggests that local production of cotton in the Middle East was neither significant nor esteemed enough to compete with imports from India (97).

In ch. 3, M. examines the movement of Asiatic rice. This grain was an important crop in the eastern Mediterranean and the Middle East during the late antique and early Islamic periods. But our knowledge for earlier periods is problematic because the links between the written evidence and archaeology, or lack thereof, skew any definitive chronology widely; varieties of rice appear in written records that provide a *terminus ante quem* c. 500 B.C.E. (108–11), but the archaeology for rice cultivation before 100 B.C.E. is disputed (112). This, M. suggests, indicates a slow spread westward from the Iranian plateau (122).

Ch. 4 studies the movement of citrus, namely citrons and lemons, from South Asia to the Mediterranean in the first millennium B.C.E. Here, our evidence is better, although Mesopotamia is an outlier (142), and discussions range from cookery to agricultural techniques (that is, irrigation and scion grafting). Interestingly, M. suggests that the general popularity of citrons and lemons was based on their novelty and pleasant scent (144).

The cucurbit family, including the 'humble cucumber' (148), is the focus of ch. 5. Cucurbits were well known in South Asia, with their ubiquity illustrated by a rich vocabulary in regional languages (149). Cultivated melons appear in Egypt and Mesopotamia in the fourth millennium B.C.E., and even earlier where local varieties existed, and in Greece between c. 500 and 300 B.C.E. The smooth luffa, or 'Indian' cucurbit, appeared in Greece in the early third century B.C.E. (166–9), and the cucumber was known in the Mediterranean and northern Europe by the first century C.E.

Ch. 6 examines the Indian lotus. Appearing in South Asia in the late third millennium B.C.E., the plant held a prominent place in Egyptian agriculture by c. 400 B.C.E. and was perhaps common before 525. The lotus was used as food, in medicinal applications and even as tableware (177–81), but it is unclear how the species spread: while the plant is frequently attested in evidence from Egypt and the Mediterranean, the same cannot be said of the Middle East (184–5).

The taro is the subject of ch. 7. The evidence for this plant is disputed, due both to linguistic difficulties in the written evidence (188), and to the absence of early archaeological data and the need to use ancient textual evidence which is hardly definitive (189–93). The earliest attestations focus on the Nile Valley, and as with the Indian lotus, do not appear in Mesopotamia and Iran; M. posits that taro arrived in Egypt through Red Sea trading routes (193).

The sissoo, the Indian rosewood, is considered in ch. 8. While the tree appears more readily further west than other plants examined here, it likely travelled along the westerly trade routes from Asia, appearing in Mesopotamia — as an import — by 2250 B.C.E. (197–201). The westward spread of sissoo, however, appears to have been limited: Babylonian sources suggest early Achaemenid use, and the *Periplus Maris Erythraei* mentions its export to the port of

Omana. There are scattered references in later material, but none appears to mention the spread of sissou in the Mediterranean.

Ch. 9 examines agency in the context of the four stages of movement and dissemination in crop transfers: familiarisation; experimentation; routinisation; indigenisation. The cultivators, or agents, involved in this stage were critical in these 'opportunistic events' (211), which speak to more than subsistence. Some of these agents were political actors, using these species for several reasons, from displays of political power through to social prestige. This was a slow process with limited successes (217), and in some cases regular, sustainable cultivation and local acceptance followed (218–19). This, over a long time, could lead to indigenisation and integration into agricultural and socio-economic networks. The processes established here continued beyond late antiquity, and the gradual 'tropicalization' of agriculture brought the ancient world, to some degree, closer to our own globalised world (223).

Supported by a voluminous bibliography, M. offers a thought-provoking and persuasive treatise: his treatment lays out the progressively complex exchanges and connections between Asia and the Mediterranean, which became ever more sophisticated. This is an excellent monograph, and a significant addition to our understanding of archaeological, economic and environmental history.

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doi:10.1017/S0075435824000583

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