



A Desert Revolution – Transformations in Northwestern Arabia and the Arid Southern Levant in the Late 2nd Millennium BCE

By Juan Manuel Tebes

Revolutionary changes in the ancient Near East have usually been associated with the agricultural and urban societies in the Fertile Crescent – recall the long-held notions of “Neolithic revolution” and “Urban revolution.” But often the semi-pastoral nomadic societies in the desert regions were, and still are, seen as inherently conservative and unchanging.

But paradigms regarding the arid regions have now changed enormously. Archaeologist Steven Rosen suggests that during two periods in the history of the arid southern Levant, transformations were so dramatic and involved so many aspects of life that they can be considered “revolutions in the desert.” The first moment is the adoption of domestic herd animals during the 6th-5th millennia BCE, and the second is the rise of mobile pastoralism in the 4th-3rd millennia BCE. New evidence now suggests that a third “desert revolution” occurred in northwestern Arabia and the arid southern Levant between the mid-2nd and early 1st millennia BCE.



Bing Map satellite view of the old quarter of Tayma, now surrounded by the modern town.
The old city's walls are still visible. (© 2020 Microsoft)



Bing Map satellite view of Qurayyah, with the fortified plateau in the center and the ancient settlement to its north-east. (© 2020 Microsoft)



View of Qurayyah from the residential area looking south-west towards the plateau. From Luciani 2019: Fig. 4. I thank © Marta Luciani for providing me the photo.

New, large metal industry-based sites in the Faynan copper region of southern Jordan were also very different from what we know in the rest of the Near East. Large fortified sites with associated buildings such as those excavated at Khirbet en-Nahas were built in dry riverbeds during the 10th-9th centuries BCE to oversee and control the extraction and processing of the local copper.



Bing Map satellite view of Khirbet en-Nahas, with the square fortress and metallurgical buildings. Still visible are the large slag piles to their south. (© 2020 Microsoft)



Gate of the Khirbet en-Nahas fortress looking to the east. In the background, the north-eastern wall. (© J.M. Tebes)

The rise of non-state hierarchical societies

At the northwestern Arabian oasis-towns, the erecting of wall systems and the construction of complex hydraulic systems and massive building structures necessitated supervision by some sort of managerial entity, probably what anthropologists call "chiefdoms." "Warrior burials" with weapons found in 2nd millennium BCE Tayma symbolically connected the local elites with the ruling classes of the Fertile Crescent.

Similarly, the magnitude of the copper exploitation at Faynan necessitated management well beyond the capabilities of the local tribal societies, a political entity such as a "chiefdom" or "tribal kingdom." In the Early Iron northern Negev, the site of Tel Masos also displays evidence of a chiefdom, with specialized buildings and probably control of small neighboring villages.

The development of an advanced metallurgy technology

The rise of industrial metallurgy in the Wadi Arabah is one of the most important social events seen in the region. In the last phases of the Late Bronze Age, the Egyptians carried out annual expeditions to the copper mines of Timna, following the end of the contacts with

Cyprus, Egypt's main supplier of copper. When the peak in copper production occurred in the 11th-10th centuries BCE, the Egyptians were gone and the mining exploitation was probably in the hands of the local population.



Panoramic view of the Timna smelting Site 2. (© J.M. Tebes)

Extraction of copper ore began in Faynan – the largest source of copper in the Levant – as early as the mid-2nd millennium BCE. Copper exploitation developed much further in the late 2nd millennium and peaked in the late-10th and 9th centuries BCE, the smelting taking place in sites with high levels of toxicity and where industrial debris accumulated in huge slag piles, such as those found at Khirbet en-Nahas and Khirbat al-Jariya.



Deep slag mound at Khirbet en-Nahas, with adjoining buildings. (© J.M. Tebes)

Owing to the paucity of studies in northern Arabia, our picture of local metallurgy is skewed towards the southern Levant. However, copper metallurgy did exist in the northern Arabian oasis-towns. In Qurayyah one workshop for melting arsenic copper was dated to the late 3rd millennium BCE, with ores coming not from Arabah sources but Western Arabian ones. If confirmed, then the north-Arabian metallurgy likely developed autonomously.

The earliest oasis hydraulic works and Bedouin runoff agriculture

Annual precipitations in these arid regions are generally less than 250 mm, too dry for rain-fed farming. However, the central Negev Highlands constituted a propitious ecological niche for opportunistic agriculture practiced by local Bedouins. The presence of runoff agriculture in this region during the 2nd millennium BCE is attested by radiocarbon dates retrieved from ancient farming fields at Horvat Haluqim and the 'Ain el-Qudeirat Valley.

New hydrogeological studies at Tayma and Qurayyah have found the earliest evidence of the construction of complex irrigation systems during the 2nd millennium BCE. The most common method was erecting retaining walls to divert runoff or underground water to nearby farming fields, the digging of wells, and the access to springs.

The earliest industrial ceramic traditions in north-western Arabia

The recent excavations at Tayma and Qurayyah have clarified local ceramic traditions. At Qurayyah, production of so-called “Qurayyah Painted Ware” is now attested as early as the mid-2nd millennium BCE. A pottery kiln was unearthed and although its technology was very simple, it certainly went beyond the household level, pointing to an individual workshop industry.

The domestication of the dromedary and the emergence of long-distance trade

The end of the 2nd millennium BCE was traditionally seen as the period of the emergence of the Arabian overland trade, presumably made possible by the domestication of the dromedary. But recent reassessments indicate that camels were domesticated in southeastern Arabia in the early 1st millennium BCE. This is in agreement with the recent re-dating of Timna’s assemblage of domestic camel remains to the 11th-10th centuries BCE and the earliest appearance of dromedary remains at Tayma dating to the 11th-9th centuries BCE.

The materialization of a new religious world

The late 2nd millennium BCE local desert shrines provide the earliest evidence of the incorporation of outside features as central components of the desert cults, particularly Egyptian and Levantine architectural elements. Evidence exists showing regular movements of people to sacred places who performed rituals such as sacred hunting of desert animals. Open-air sanctuaries were the most common cultic places in the desert regions, and were found particularly in Timna Valley and adjacent areas such as Har Shani. And for the first time, Egyptian temple topographical lists refer to the names of two tribal deities whose greater expansion would occur centuries later: Yahweh and Qos.



Open-air shrine at Timna smelting Site 2. Notice the altar in the center and the standing stones at the back. (© J.M. Tebes)



Rock-art panel at Timna Site 25, depicting a ritual hunting scene. (© J.M. Tebes)

In sum, the transformations of northwestern Arabia and the arid southern Levant started far earlier and were more profound than once thought. The new data demonstrate that some technological innovations, particularly water management in arid environments and copper processing, appeared in northwestern Arabia far earlier than in the southern Levant. This forces us to rethink traditional approaches that see the circulation of innovations as moving from the Near Eastern “cores” to the Arabian “peripheries.”

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Further Reading:

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