

# Ancient Flood Management-

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Informing Contemporary Approaches –

# Floodplain Management – Ancient Models

- Marib, Southern Arabia – Sabaean Kingdom – (1200 BCE – 470 CE)
- Petra, Jordan – Nabatean Kingdom – (400 BCE – 106 CE)
- Mai Shum, Aksum, Ethiopia – Aksumite Empire – (150 BCE – 650 CE)
- Lalibela, Ethiopia – Zagwe Dynasty – (1050-1272 CE)

# Marib Dam- – Existing ruins 700 BCE-600 CE

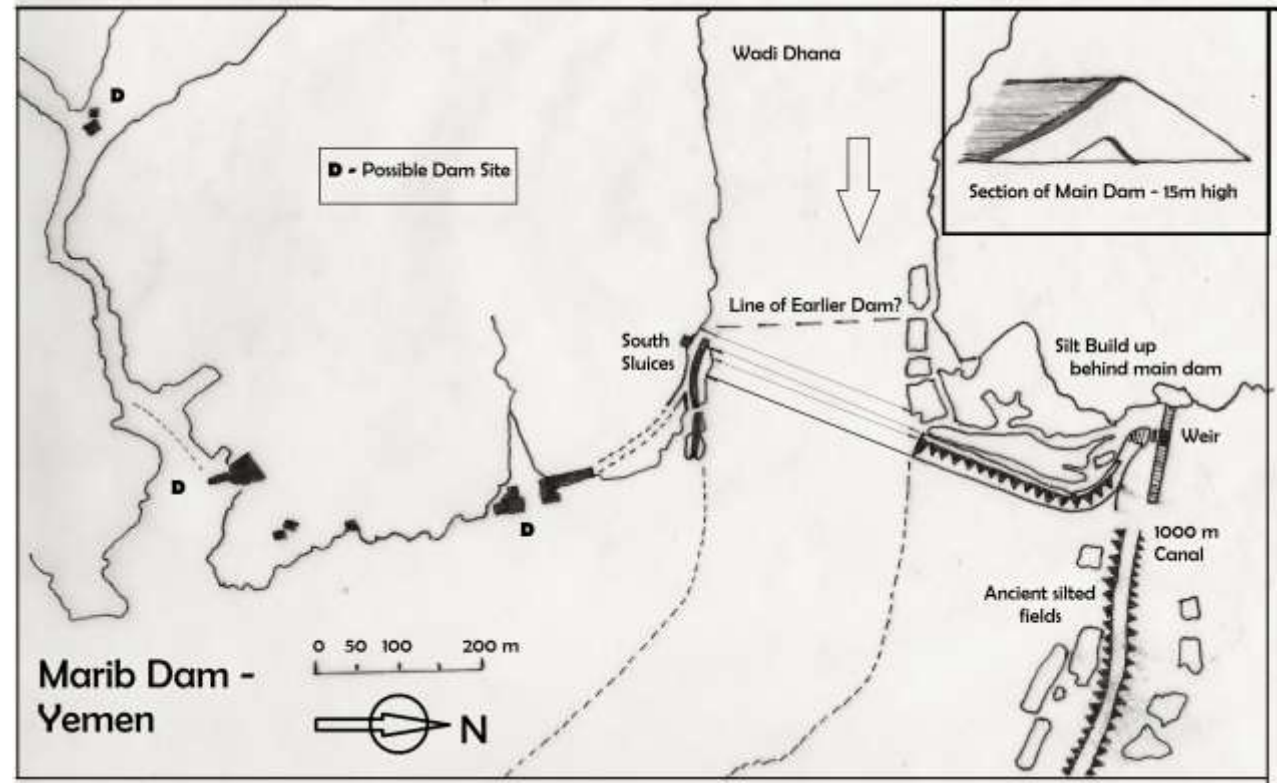
Image from Wendell  
Phillips Expedition -  
1951



A section of the great Marib dam, one of the wonders of the ancient world. Original construction was begun about 2,700 years ago as the Kingdom of Sheba approached its most powerful period. The dam burst in the sixth century A.D. during Abyssinian rule.

# Marib Dam –

- - Initial flood abatement begins c. 2500 BCE
- - Settled communities begin c. 1500-1200 BCE
- Main extant dam begins c 800 BCE
- Existing ruins c. 5<sup>th</sup>-3<sup>rd</sup> cent. BCE





## Marib -

- Providing surface water, ground water, and silty soils – Soil irrigation –
- Reported as one of the oldest known dams.
- Only surface water in Yemen, providing 8% of agricultural production.

<http://www.carboun.com/water/cities-biocapacity-and-trade-the-case-of-marib/> - Permission requested -

# The South Sluice – Marib Dam -

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- Marib served as the capital of the Sabaean (Sheba) Kingdom circa - 1200 - 150 BCE
- 150 BCE - 470 CE – Under Ethiopian-Aksumite control.
- Trade shifts to Red Sea – Abandonment mid-6<sup>th</sup> cent. CE



# Water-wheel (*Noria*) in Hama, Syria -

- Mosaics dated to 350 CE show *noria* water wheels on the Orontes river, Syria.
- Scholars speculate the piers of the Marib dam were utilized to house *noria* in the final phases in that the dam had silted up.
- Traditions state existing gardens turned to thorns w/in one generation.

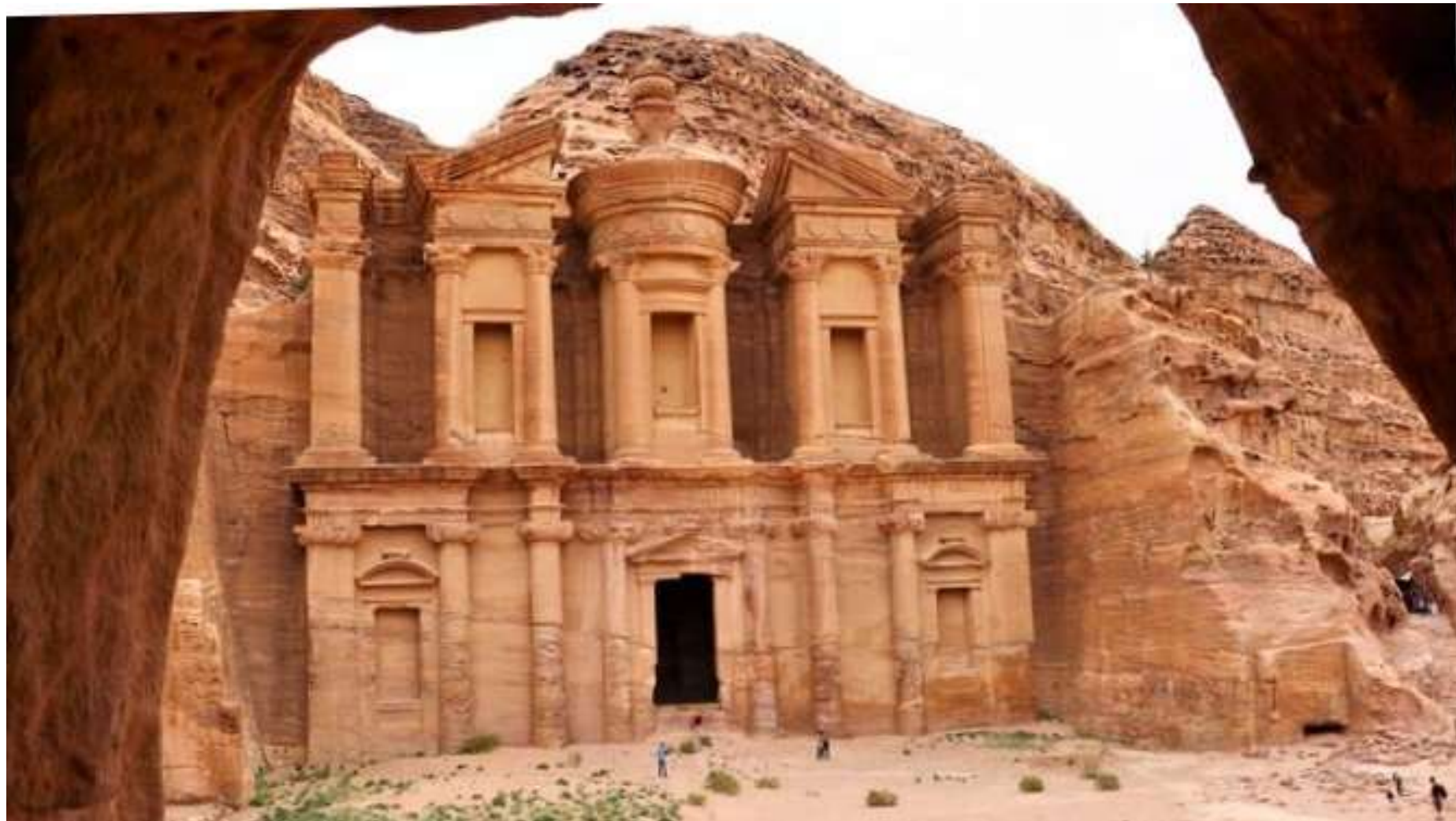




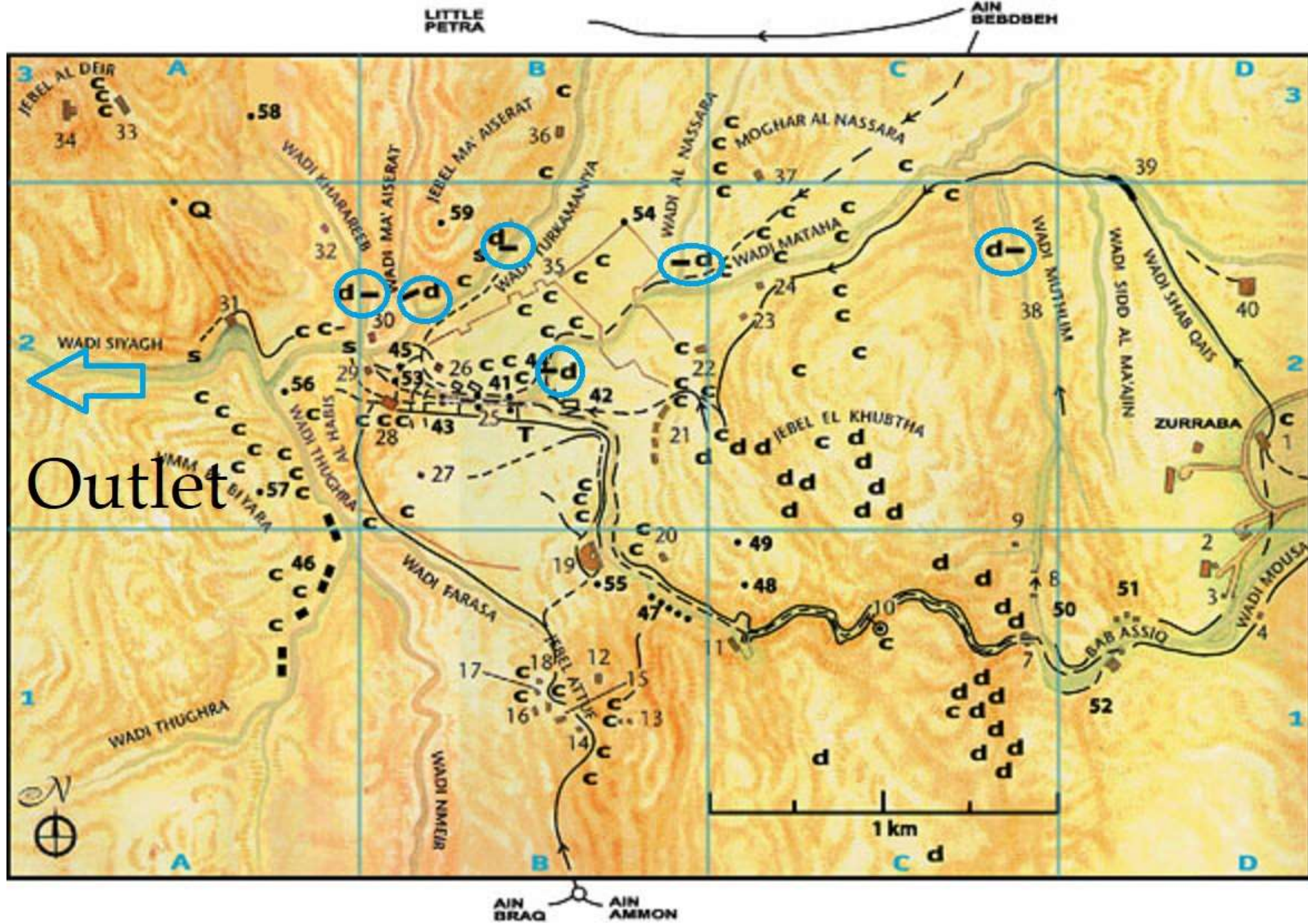
Petra – Jordan – Sandstone City

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# Petra – Jordan



# Petra – Jordan – (ibid)



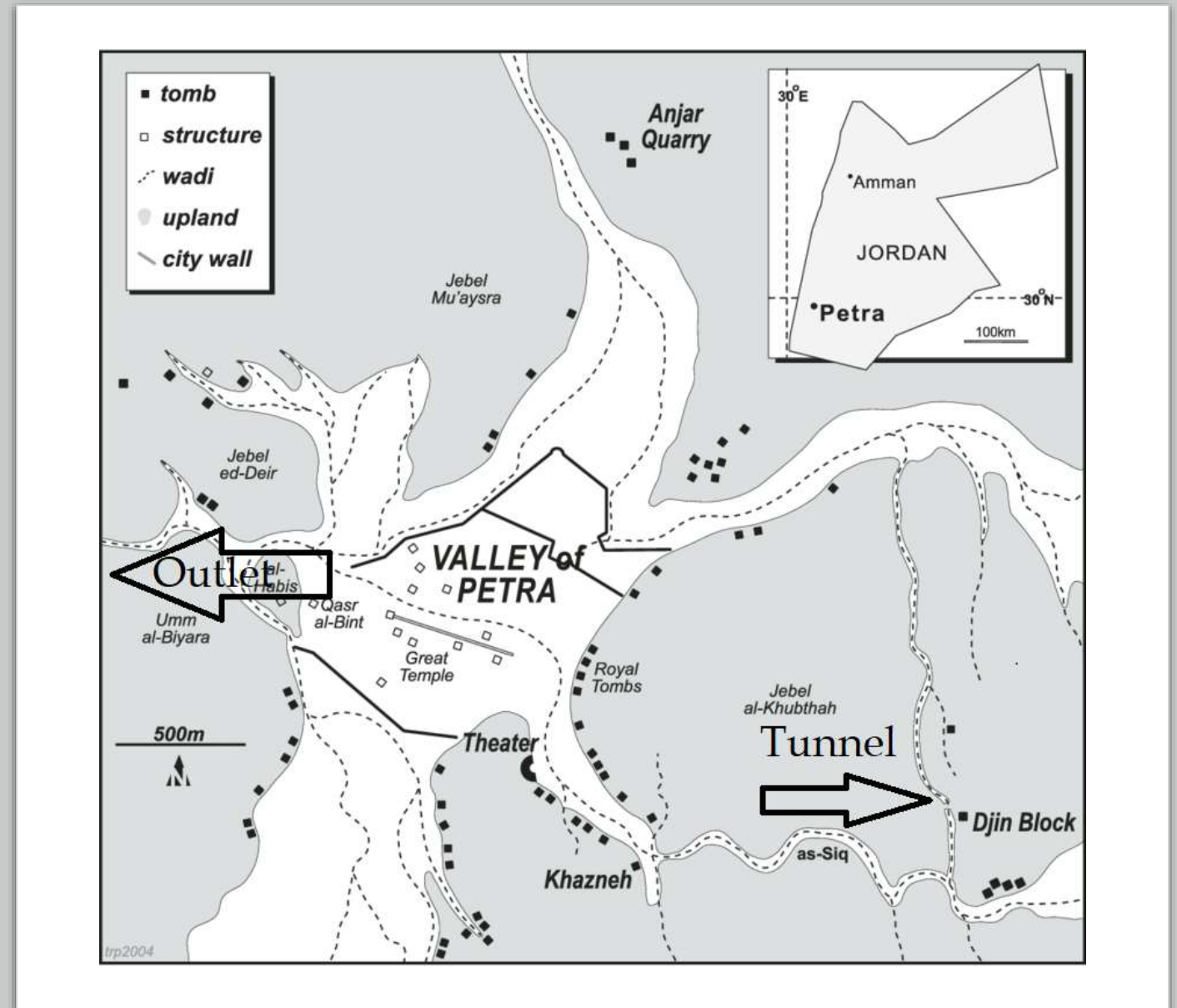
# Carved flood diversion channels & aqueducts

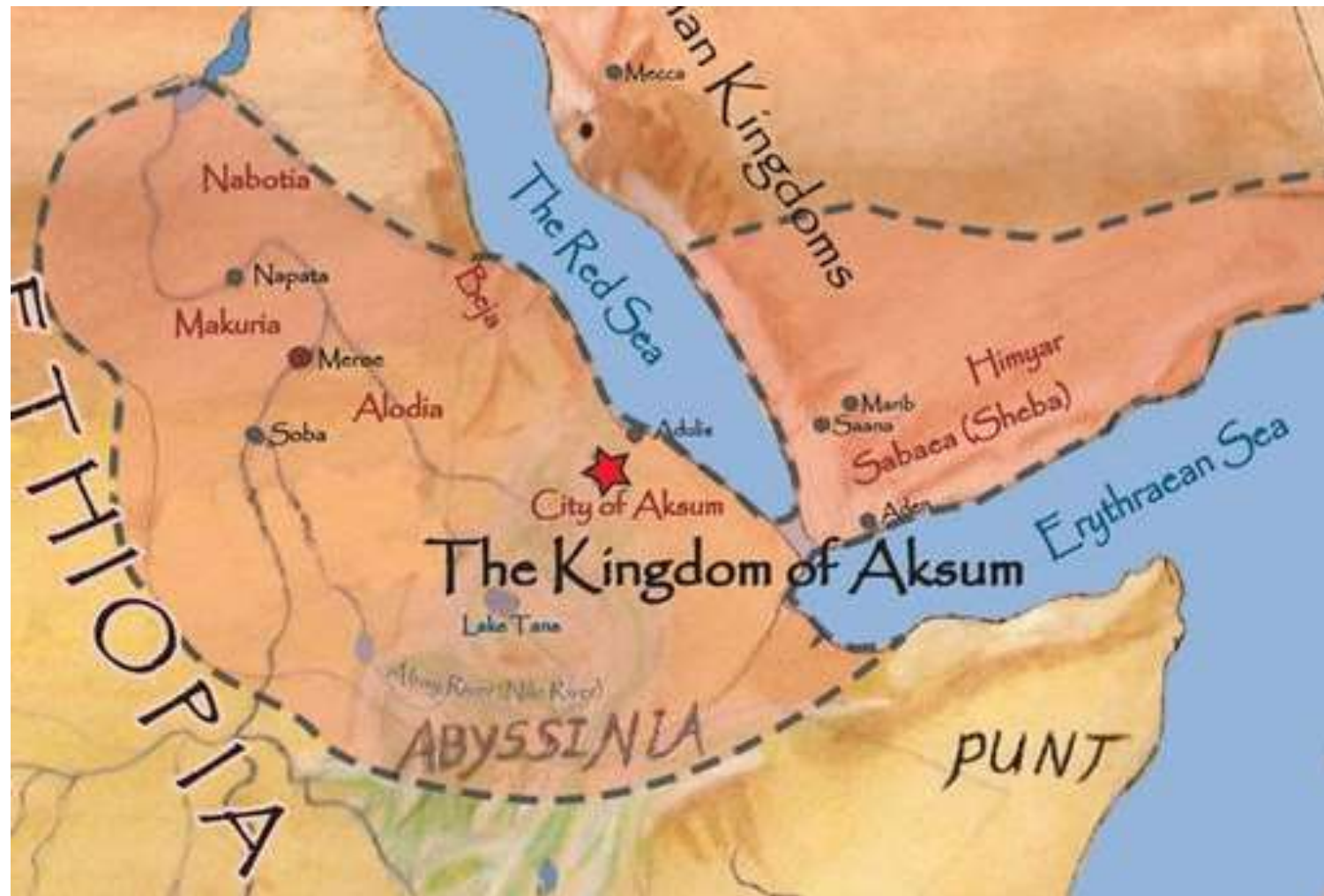
<https://news.wef.org/ancient-nabataeans-used-sophisticated-water-technologies-to-create-a-thriving-dessert-city/>



# Petra- Jordan- Nabatean Period 400 BCE- 106 CE

- Main urban center surrounded by funerary monuments in an area over 10 Km<sup>2</sup>.
- Most water features are silted in, but the side channels and by-pass tunnel still function.
- Springs still supply fresh water, but population pressures upstream persist.





Aksum –  
Ethiopia –

Aksumite  
Empire -  
200 BCE -  
700 CE



# Aksum-


- Mai Qoho –“Water from the Rock” - Basalt outcropping captures runoff from rains, springs, & seeps.
- Main water source in antiquity. Still used today.
  - Consumption
  - Holy Water Site
  - Channels & settlement pools mostly silted.



Image © 2021 CNES / Airbus

Google Earth

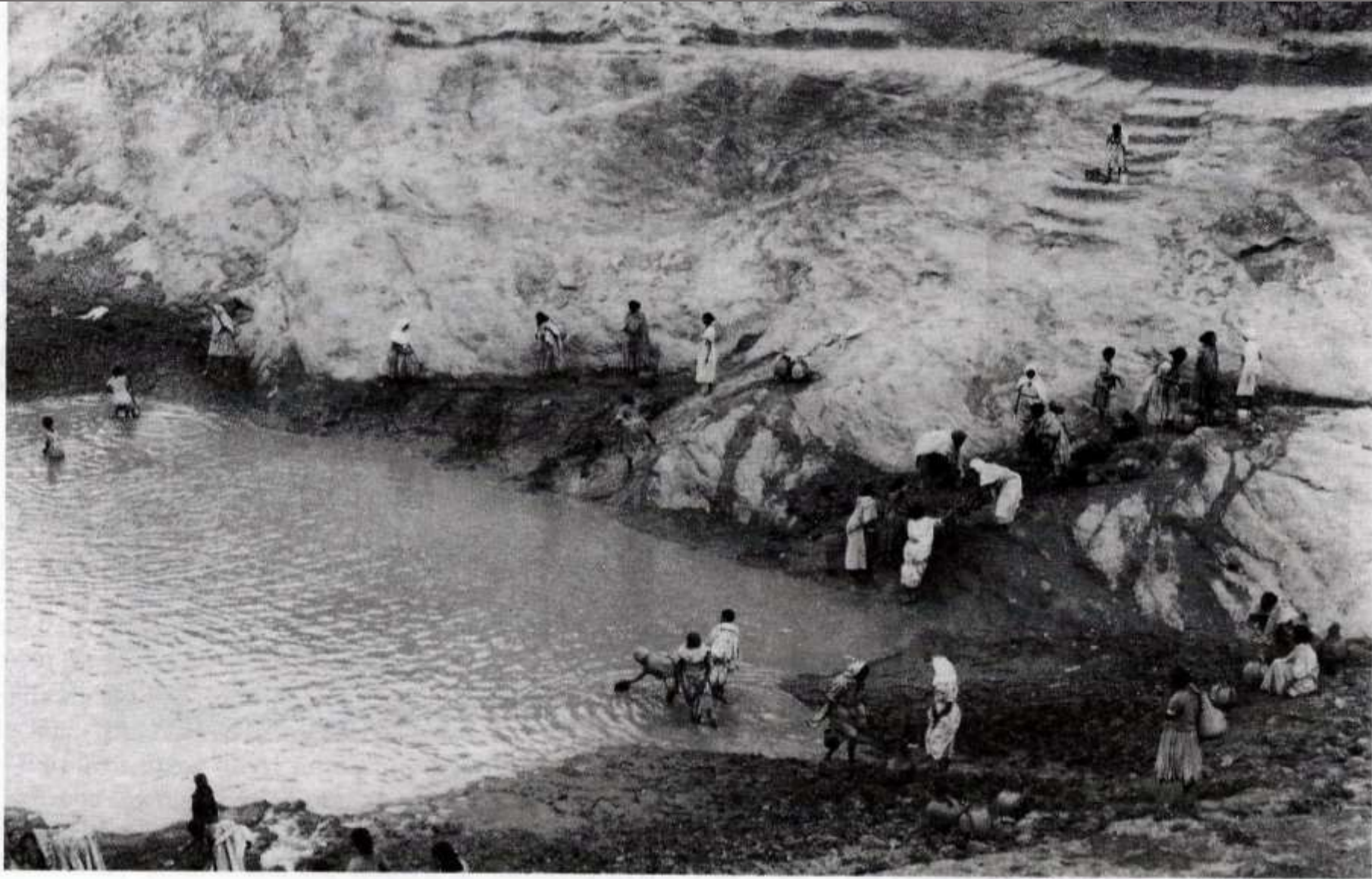




Queen of Sheba's Bath, Mai Shum

Image © 2021 Maxar Technologies

Google Earth



Mai Shum  
Reservoir –  
Aksum -  
Ethiopia

*Plate 2.4. The Mai Shum reservoir, photographed in March 1974.*



Lalibela – Ethiopia -

Lalibela –  
Ethiopia –  
1050 -  
1272 CE

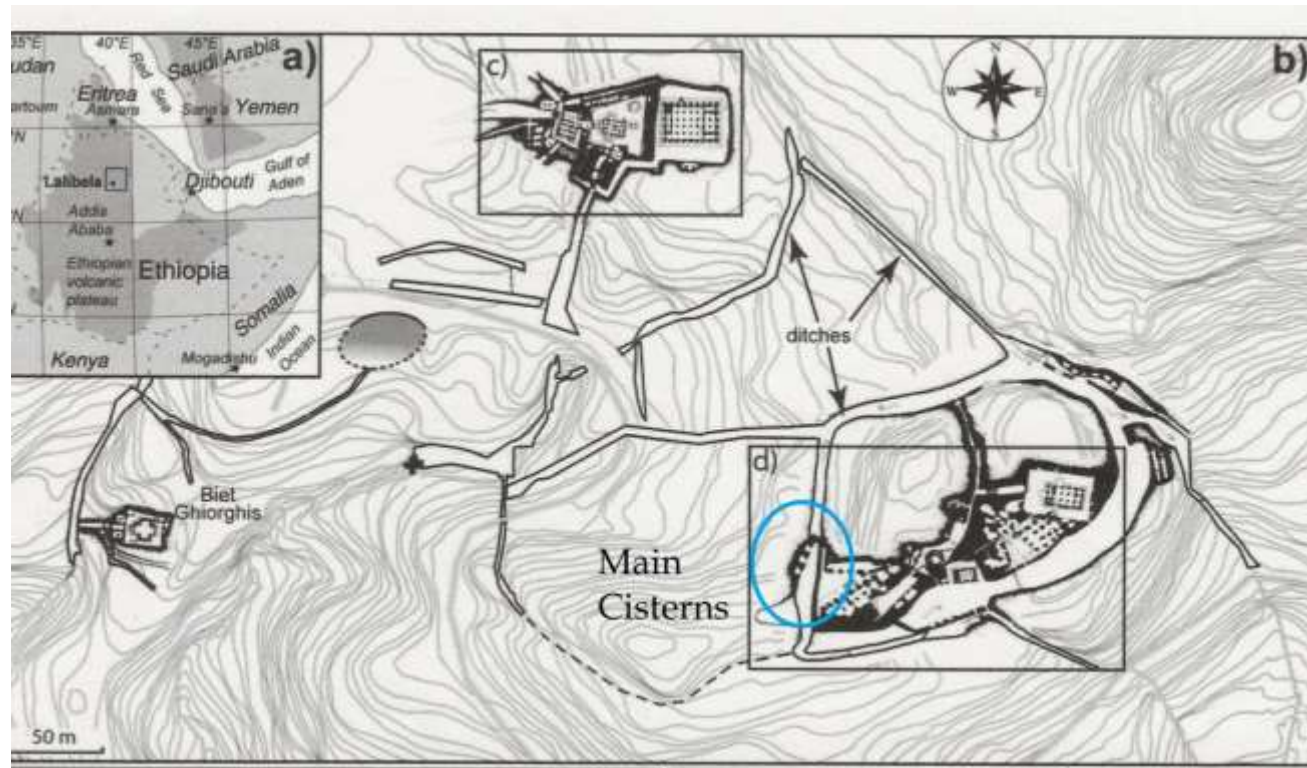
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Ethiopian highlands consist of successive basalt flows (trap series), creating steps with occasional scoriaceous, ashy layers of tuff.

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Three distinct complexes comprise 11 structures, all hand hewn from bedrock in traditional rock-hewn structures-

# Medieval Pilgrimage Site – Still in Use



- The entire site is designed around the pilgrimage ethos of the Holy Lands.

# Carved Cisterns - Lalibela





# Lalibela- 1050-1272 CE

Flood diversion and delivery systems

- 11 Rock-Hewn Structures –
- Channels carved as Dry moats, for drainage, and water diversion to cisterns





Lalibela –  
Ethiopia

- Channels and dry moats -



# My recent article on Lalibela - Ethiopia

## Through Pilgrim Eyes: The Creation of Significance

By Samuel Walker Thu, Apr 15, 2021

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*A great monastic dynasty, little known to most, opens a window to understanding Ethiopia's cultural past, and this country's profound place in world history.*



*Much of Ethiopia's rich cultural-social heritage lies within the history of the Ethiopian Orthodox Tewahedo Church (EOTC). After the decline of the Aksumite Empire (650CE/AD), the Zagwe dynasty (Circa 1000 – 1270 CE/AD) arose, establishing its capital in Lalibela-Lasta. This capital, founded as a monastic kingdom, served as a historical bridge between the ancient and modern era. As a platform for understanding Ethiopia's historicity, Lalibela encompasses*

*and builds upon religious and cultural adaptations and identity-formation yet to be fully researched. One must not approach Lalibela or surrounding churches from the standpoint of an archaeologist or architect. Lalibela must be seen through pilgrim eyes.*

**A**s the nexus of human origins, Ethiopia constitutes a Holy Land in its own right, a sacred landscape rooted in humanity's very creation. Ethiopia's unbroken chain of history, reaching back to the foundations of civilizations and beyond, reflects one of humanity's most significant chronicles of identity. It is this brilliant, yet underrepresented narrative, which continues to inform Ethiopia's unique ethos and self identity, steeped in its own majestic, millennia-old myths.

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# Thank you – And Questions -

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# Further Reading -

- Marib – Southern Arabia
- [https://www.jstor.org/stable/41222979?read-now=1&seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/41222979?read-now=1&seq=1#page_scan_tab_contents)
- <http://www.carboun.com/water/cities-biocapacity-and-trade-the-case-of-marib/>
- <https://www.nationalgeographic.com/science/article/150603-Yemen-ancient-Sheba-dam-heritage-destruction-Middle-East-archaeology>
- <http://medcraveonline.com/IJH/IJH-02-00064.pdf>
- <https://repository.upenn.edu/dissertations/AAI9101160/>
- Petra -
- [https://link.springer.com/referenceworkentry/10.1007%2F978-1-4020-4425-0\\_9457](https://link.springer.com/referenceworkentry/10.1007%2F978-1-4020-4425-0_9457)
- <https://news.wef.org/ancient-nabataeans-used-sophisticated-water-technologies-to-create-a-thriving-desert-city/>
- [http://web.sahra.arizona.edu/unesco/shortcourses/chapters/radwan\\_L3.PDF](http://web.sahra.arizona.edu/unesco/shortcourses/chapters/radwan_L3.PDF)
- [https://www.researchgate.net/figure/Map-of-the-Valley-of-Petra-Jordan\\_fig10\\_285265200](https://www.researchgate.net/figure/Map-of-the-Valley-of-Petra-Jordan_fig10_285265200)
- Mai Shum – 1989 - Munro-Hay, S. C., Excavations at Aksum, The British Institute in Eastern Africa, London,
- Lalibela - <https://www.pinterest.com/pin/479211216587375014/>
- <https://popular-archaeology.com/article/through-pilgrim-eyes-the-creation-of-significance/>