

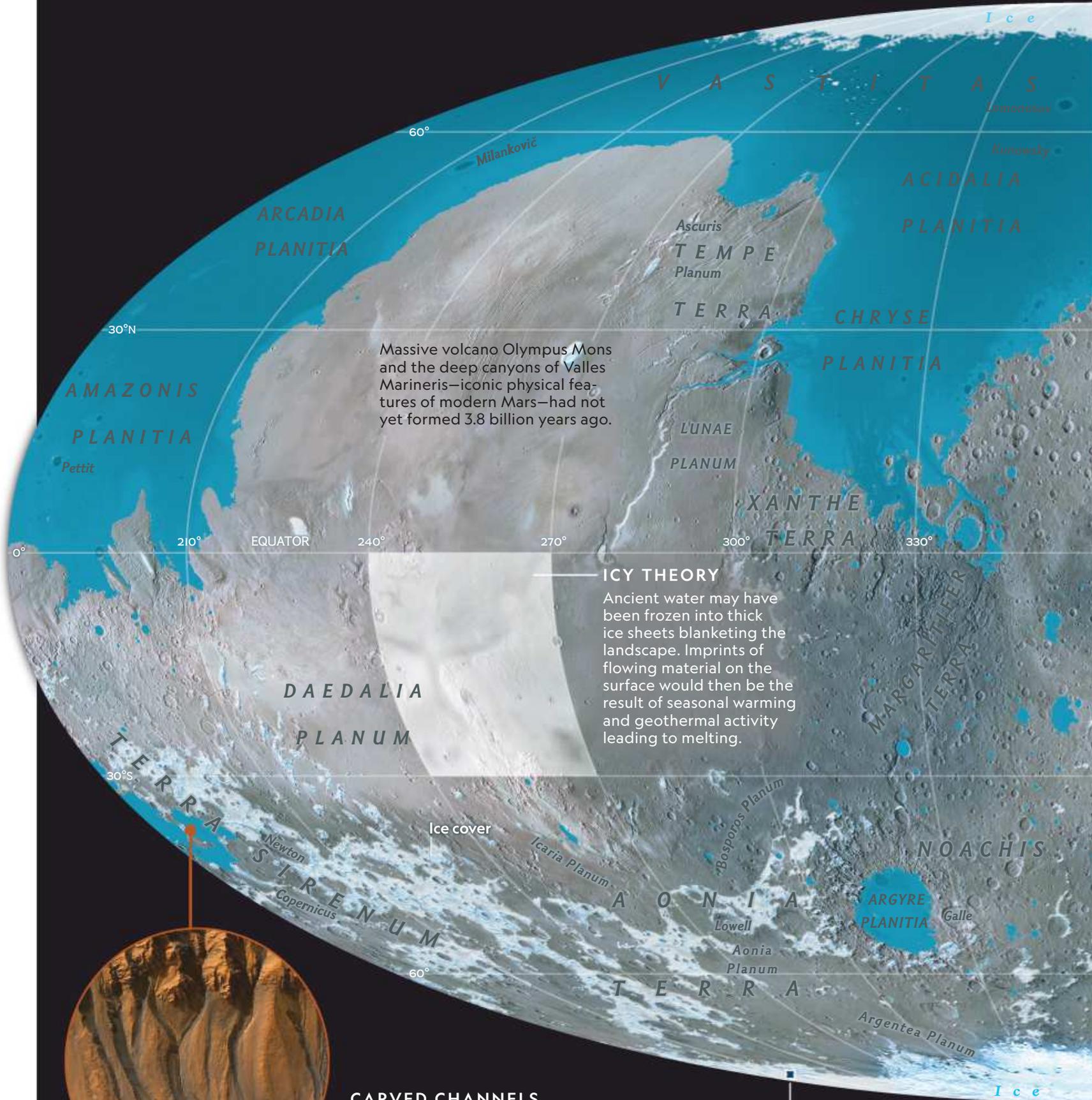
NATIONAL GEOGRAPHIC

▶ THE SEARCH FOR SACRED TEXTS

"If you are dealing with antiquities, you must get your hands dirty."

EITAN KLEIN
ISRAEL ANTIQUITIES
AUTHORITY

MARINE MARS?



Massive volcano Olympus Mons and the deep canyons of Valles Marineris—iconic physical features of modern Mars—had not yet formed 3.8 billion years ago.

ICY THEORY

Ancient water may have been frozen into thick ice sheets blanketing the landscape. Imprints of flowing material on the surface would then be the result of seasonal warming and geothermal activity leading to melting.

CARVED CHANNELS

Gullies like these, found in the canyons of Gorgonum Chaos, show clear evidence of flowing material. Whether they were formed by water is still unknown.

In July 2018 scientists argued for the existence of a 12-mile-wide subsurface lake using radar evidence from a European mission.



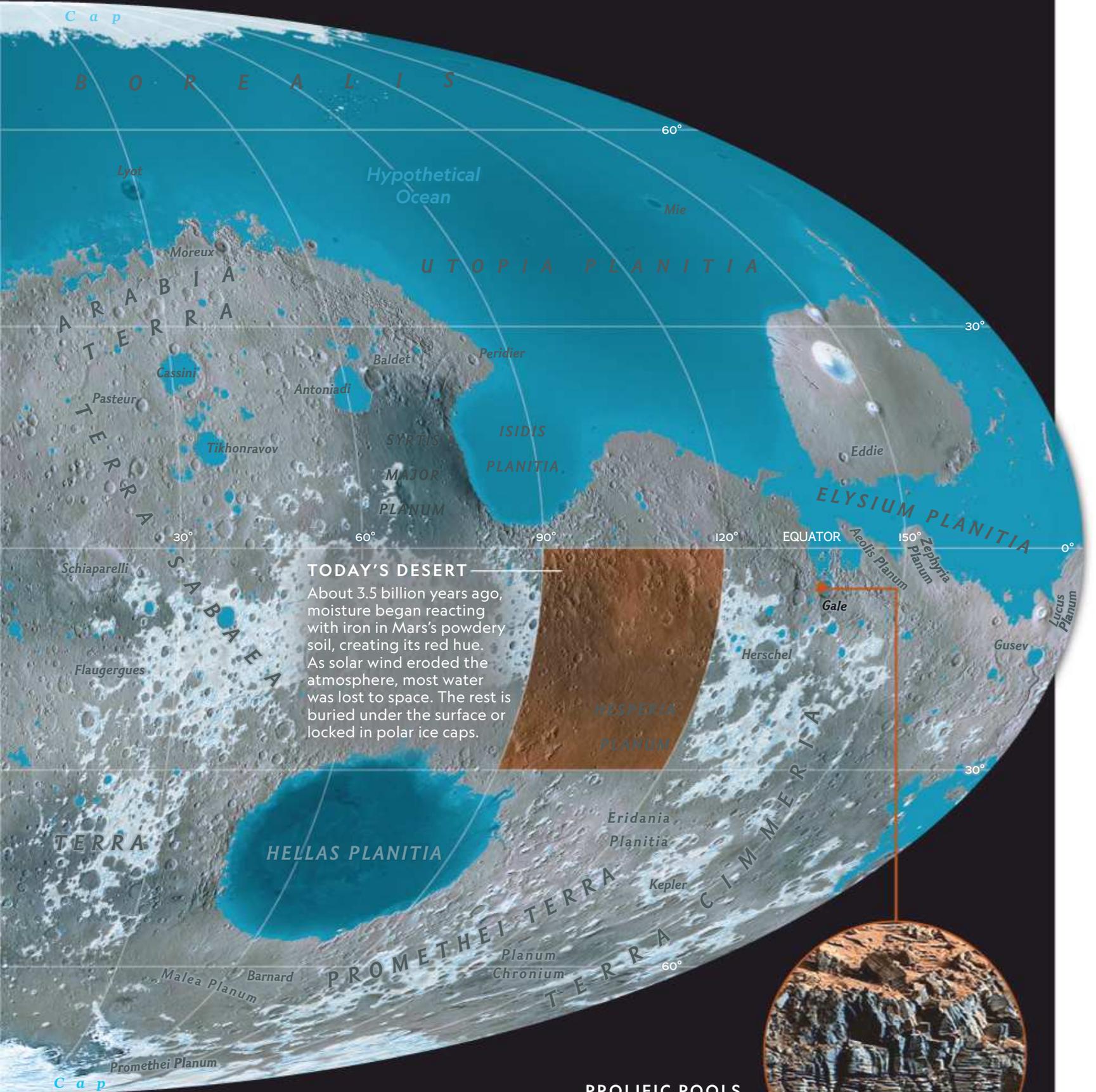
TELEVISION

Progress on MARS

Watch season two of the docudrama series MARS. Episodes air Mondays at 9/8c through December 17, on National Geographic.

Ancient Mars looked very different from today's parched, crimson landscape. Around 3.8 billion years ago, the planet may have had enough surface water to fill an ocean or bury much of it in ice. Missions like NASA's Curiosity have found clues to the mystery: Did abundant water once cover the red planet?

BY MATTHEW W. CHWASTYK



TODAY'S DESERT

About 3.5 billion years ago, moisture began reacting with iron in Mars's powdery soil, creating its red hue. As solar wind eroded the atmosphere, most water was lost to space. The rest is buried under the surface or locked in polar ice caps.

Polar ice caps expand and contract with the planet's seasons. It's unknown how far they once reached.

PROLIFIC POOLS

In this image from the Curiosity rover, the arrangement of deposits implies that Gale crater once held a lake of considerable depth.



SOURCES: BETHANY EHLMANN, CALECH; CALEB FASSETT, NASA MARSHALL SPACE FLIGHT CENTER; MICHAEL MANGA, UNIVERSITY OF CALIFORNIA, BERKELEY; ROBIN WORDSWORTH, HARVARD UNIVERSITY; NASA/JPL, UNIVERSITY OF ARIZONA; NASA GODDARD SPACE FLIGHT CENTER; USGS ASTROGEOLOGY SCIENCE CENTER