

Newsday

explore **LI**

HEALTH

WHY AM I
SO HUNGRY?

B6

EXPERT ON THE RED PLANET
GIVES DOWN-TO-EARTH ANSWERS
AT LI MUSEUM **B2**

mysteries of **mars**

ISN'T IT ROMANTIC? 29 Valentine's Day restaurants newsday.com/restaurants



eyeopener

The Nassau County Museum of Art's current exhibit, **"Fool the Eye,"** will be food for thought at a Brown Bag Lecture at 1 p.m. Thursday.

Guests are invited to bring a lunch and listen to a talk by museum docent Riva Ettus on the current exhibit of optical illusions and artistic sleight of hand.

INFO 516-484-9338, nassaumuseum.org

ADMISSION \$12 includes museum admission



BERNARDUCCI MEISEL GALLERY

speaking terms

London comes to Elmont in the form of the beloved musical **"My Fair Lady."** An eight-show run at BroadHollow at Elmont begins this weekend with performances at 8 p.m. Saturday, and 2:30 p.m. Sunday. Witness an affectionate clash of culture in this fun and funny musical and its iconic Broadway songs. Continues through March 4.

INFO 516-775-4420, broadhollow.org

ADMISSION \$29 (\$24-\$26 online)



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NASA / JPL-CALTECH / MSSS

HERE AND ON THE COVER NASA's Mars rover Curiosity captured shots over a dune it traversed on the red planet in 2014.

red rover, red rover

NASA expert coming to LI to shed more light on Mars

BY DAVID J. CRIBLEZ
david.criblez@newsday.com

Mars has always been a mystery. Earth's second-closest neighbor has been the focus of media and movies for decades. But how much do we really know about the red planet?

Kobie Boykins, a mechanical engineer at NASA's Jet Propulsion Laboratory, presents "Exploring Mars: The Next Generation" discussion at the Cradle of Aviation Museum in Garden City next Tuesday as part of the museum's "Countdown to Apollo at 50" yearlong celebration.

But before he arrives, Boykins, who helped build the Mars rover exploration vehicles, explains key things we know — and don't know — about the fourth planet from the sun:

1 THERE ARE SIGNS OF WATER ON MARS

The rover discovered traces of water on the planet's surface.

"We were looking for a mineral called hematite, which only forms in water on Earth. We found hematite on the surface of Mars," says Boykins, 43,

'EXPLORING MARS: THE NEXT GENERATION'

WHEN | WHERE 7 p.m. next Tuesday at the Cradle of Aviation Museum, Garden City
INFO 516-572-4111, cradleofaviation.org
ADMISSION \$5

of Omaha, Nebraska. "We were able to see changes in the salt content of the soil. It started to tell a story of how this erosion process occurred. Scientists put a lot of these pieces together and knew they were in a dry lake bed and that there was water here. Plus, we scraped up some of the ice, brought it inside the vehicle, melted it and proved it was H₂O. There was an overwhelming evidence of water on Mars."

2 MARS HAS THE SAME AMOUNT OF LAND AS EARTH

Although Earth is bigger than Mars in size, both planets have a similar land mass.

"If you removed the oceans, took all of our land that's above the water and put it together, that would be the sur-

face size of Mars," Boykins says. "But as a planet, Mars is about one-third the size, in diameter, of Earth."

3 MARS HAS THE TALLEST MOUNTAIN IN THE SOLAR SYSTEM

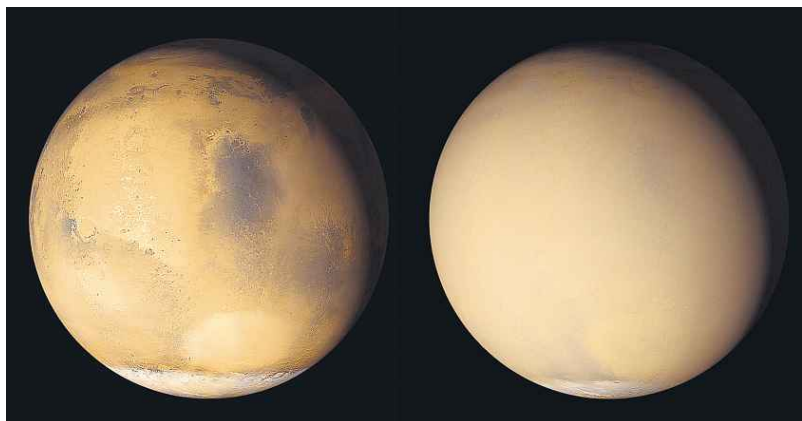
Olympus Mons on Mars stands more than 82,000 feet tall — that's more than 2 1/2 times the height of Earth's Mount Everest.

"It's huge," Boykins says. "In essence, it's the size of the state of Arizona. Their Grand Canyon would span the whole United States, from East Coast to West Coast. We are pretty sure it's a dead volcano. My guess is that it hasn't been active for tens of thousands of years."

4 IT TAKES ABOUT TWO YEARS TO GET TO MARS

Because humans are fragile and can only survive a certain level of impact, it would take longer for a manned mission to reach the planet than robotic equipment alone.

"A human mission to Mars is not about how fast we can go but how fast we can slow down to land," Boykins says. "Our ability to take deceleration isn't very good. For example, roller coasters are designed to be around four



NASA

Images from 2001 taken by NASA's Mars Global Surveyor orbiter show the change in the planet's appearance before, left, and after a global dust storm.

times the gravitational pull of Earth. That is about where most people knock out."

5 IT'S POSSIBLE TO LIVE ON MARS, BUT . . .

The concept of living on Mars has been talked about for years, but such a feat would not come easily.

"We'd have to find a way to harvest the water and figure out a way to create oxygen that's breathable," Boykins says. "If we could bring enough plants, the plants could ingest the carbon dioxide in the atmosphere and spread out oxygen for us to breathe. You'd have to create an environment that is a bit warmer and be somewhere near the equator. We'd also have to create some energy source. We are talking about a significant effort."

6 IS THERE LIFE ON MARS?

The answer to the question everybody wants to know varies, but based on the latest information available, traces of life seem apparent.

"As with anything else, wherever we see water, we see life. Mars had liquid water at some point in time. I think there probably was something that was alive," Boykins says. "It wasn't a high order of life, but rather blue-green algae, pond scum, things you would find in an aquarium. But because of a cataclysmic event, it was wiped out."



NASA

A picture taken by the Mars rover Curiosity shows a sloping hillside within the "Murray Buttes" region.



NASA

Kobie Boykins, a NASA mechanical engineer who helped build the Mars rover exploration vehicles, will present intriguing new information about the planet.



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