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Quest for the extraterrestrial

OBABUR RAHMAN

ACCORDING to Hubble Telescope's observations, our 15 billion years or so old Universe consists of 125 billion galaxies and as many as 6.25 billion life-supporting solar systems like ours. But why haven't we heard from any other extra-terrestrial civilization yet?

For the last 50 years, enthusiasts have been listening out for signals, discernible in the background noise of space, that might point to another civilisation.

Apart from a couple of brief, intriguing events, nothing has really shown up, which has prompted the Search for Extraterrestrial Intelligence (SETI) to shift more and more from "passive" to "active" mode.

We are already spewing out diffuse signals through TV and radio broadcasts that pass through the ionosphere.

With "active SETI", the idea is to use powerful radio astronomy transmitters to beam out to interesting stars or extrasolar planets in the hope of eventually hitting pay dirt.

The possibility of the existence of any extraterrestrial intelligence (ETI) was the heart of the discussion at a recently held two-day conference of the Britain's most prestigious scientific organization, "The Royal Society." Held on 25th and 26th January 2010, it was the first ever meeting devoted to



Paul Davies of Arizona State University

the study of alien life forms during the 350-year history of the Royal Society. The conference was organized to mark the 50th anniversary of the Search for Extraterrestrials (SETI) program. According to Lord Rees, president of the Society and Astronomer Royal, the chance of discovering life on other worlds is greater than ever. Lord Rees, also a professor of cosmology and astrophysics at Cambridge University, expressed his views in this international conference. He stressed that over the last decade, technology has undergone sufficient development raising our hopes to discover planets orbiting stars that are complete with all the conditions to sustain life.

It is worthwhile to note that last year NASA launched the Kepler spacecraft, a historic project whose objective was to find Earth-like planets in the Universe. But the celebrated



Stephan's Quintet, also known as Hickson Compact Group 92 as seen from NASA's Hubble Space Telescope.

scientist also warned that the aliens might be very different from what popular sci-fi films project. It is believed that extraterrestrial life forms might be entirely beyond human sensory perceptions. In the words of Lord Rees, "There may be advanced life of a kind we can't conceive, a kind that doesn't reveal itself by electromagnetic radiation—a kind that isn't communicating at all."

World's leading astronomers, astrobiologists and astrophysicists from NASA, European Space Agency and UN office of Outer Space Affairs participated in the conference. Paul Davies, a physicist from Arizona State University and a keynote speaker also attended it. He spoke on the possibility of alien microbial life existing right here on earth. This notion has been echoed by the scientists of SETI as well.

Since 1960, SETI has been scouting the heavens hoping to receive any indication if an advanced alien life form exists elsewhere in our galaxy or beyond. However, so far nothing of that sort could be established. Suggesting new ideas for the future of SETI, Paul Davies, in his keynote speech, noted that this is due to the fact that the field of search is simply mind-boggling where radio signals have to travel tens of thousands of light years. Secondly, the exploration is probably aimed at the wrong place, at wrong time and in the wrong way. But complications could be experienced from the other directions as well. Frank Drake, founder member of SETI, who was also present at the conference, explained that the more technologically sophisticated the Earth gets, the quieter it becomes in terms of emitting signals into space. This makes the chance to detect us harder for any alien civilization searching for other celestial life forms like ourselves. But what would happen, if despite all the challenges a contact were made? What is going to be its social impact?

According to Prof. Albert Harrison of the University of California, despite all the uncertainties and fears that such contact may cause, the discovery is also likely to leave a sobering impact on us, perhaps even delight.

O. Rahman is a freelance science writer



NEW FINDINGS



Picture shows a Sestertius coin dating from 109AD.

Source of ancient aqueduct discovered near Rome

British and Italian experts revealed the chance discovery of the source of a 1,900-year-old Roman aqueduct complete with nymphaeum near the Italian capital.

"The existence of the aqueduct was known, but we thought it was from the medieval era," Edward O'Neill told AFP.

"Not only is it Roman, but it is from Trajan's time and we found its source," O'Neill said of the discovery some 40 kilometres (25 miles) north of Rome in June last year.

O'Neill, who was filming a documentary on Roman aqueducts with his father Michael at the time, teamed up with Italian ancient topography professor Lorenzo Quilici of the University of Bologna to authenticate the find.

Quilici, a foremost expert on Roman aqueducts, explained that the source of the aqueduct had been forgotten for centuries after the artificial waterway was partially diverted in the 16th century and said it was found in "extraordinary and adventurous circumstances."

A video compiled by the O'Neills captures the spirit in the title, "Roman Aqueduct Hunting in the 21st Century."

Culture ministry official Mario Lolli Ghetti underscored the site's "extraordinary interest given the state of conservation of the systems for capturing and filtering the water."

But much of the site is in urgent need of restoration.

Notably, it is threatened by the roots of a giant fig tree.

"We are documenting a crumbling treasure," said Michael O'Neill. "This unique Roman structure is being destroyed by neglect, and by aggressive fig tree roots."

Source: AFP



GADGETRY OF OLD



Photo provided by the Royal Society shows a regulator, made by John Shelton, which accompanied James Cook on his second and third voyages to the Pacific Ocean. Famous explorer Captain Cook described his Methods for preserving the health of his crew (1776) and how he was able to save his sailors from scurvy with pickled cabbage, lemons and malt long before modern ideas of nutrition. The Royal Society, the world's oldest science academy founded on November 20, 1660, celebrates its 350 years throughout the year.

Source: AFP



SOLAR FAMILY

Rocks floating in space

ZAHANGIR KABIR

ASTEROIDS are rocks in space that never quite made it as planets. Astronomers think that our solar system began as a cloud of gas and dust. Gravity pulled parts of the cloud together to make the Sun and the nine planets. Astronomers think that the asteroids formed in that cloud but never grew large enough to be planets.

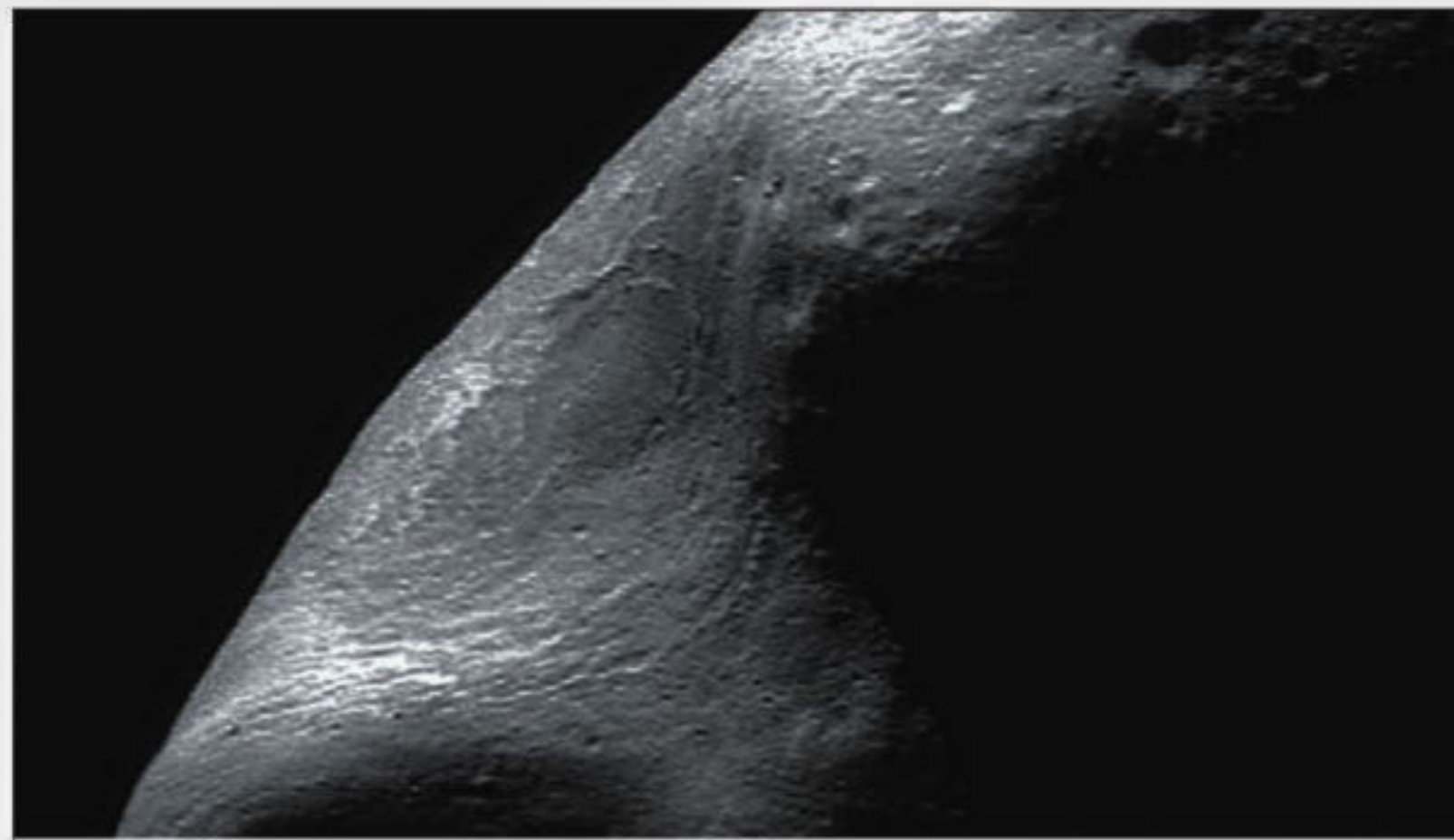
There are thousands of asteroids, and they come in all sizes. The biggest asteroid ever found is called Ceres. Ceres is more than 1,000 kilometers wide. Astronomers have found about 200 asteroids that are more than 100 kilometers across. All the other asteroids are much smaller. Some are only a few feet wide.

Astronomers wonder if once there were just a few big asteroids. The big asteroids may have crashed into each other. The crashes would have broken them into smaller pieces, making all the asteroids we see today.

Some asteroids are round. Some asteroids are long and bumpy. Some asteroids even have tiny moons going around them.

Most asteroids orbit in the asteroid belt. The asteroid belt is farther out from the Sun than Earth's orbit. It lies between the orbits of the planets Mars and Jupiter. Sometimes asteroids change orbits and move out of the asteroid belt. These asteroids cross the orbits of planets as the planets go around the Sun. A few cross Earth's orbit.

Asteroids are normally too small and far away to see with our eyes. Astronomers study asteroids with telescopes. They have also sent spacecraft for close-up looks at several asteroids. A spacecraft named Near-Earth Asteroid Rendezvous (NEAR) Shoemaker actually landed on an



Shoemaker spacecraft, focuses on a large gouge on the asteroid 433 Eros.

asteroid in 2001.

Astronomers have found that most asteroids are made mainly of stone. Some asteroids are made mostly of metals. Astronomers think that asteroids made of metal must have melted at some time in the past. The liquid metal clumped together at the center of the asteroid. Most of the rocky part later broke off from the asteroid, leaving the metal behind. What melted these metal asteroids is still a mystery.

Astronomers think that several thousand asteroids have orbits that might one day make them strike Earth. Asteroids have certainly hit Earth in the past. People have found thousands of meteorites (stones from space) that have crashed into Earth. Most meteorites are pieces of asteroids. There is a giant crater (hole in the ground) in Arizona that is more than a kilometer wide! The crater was formed when a meteor crashed into Earth.

An asteroid crashing into Earth may have killed off the dinosaurs 65 million years ago. Scientists have found a big meteorite crater around Mexico's Yucatán Peninsula. They think the asteroid that created this crater may have killed the dinosaurs. After the asteroid crashed, a huge cloud of dust would have darkened Earth. It could have become very cold on Earth, and plants that dinosaurs ate might have died. As the plant-eating dinosaurs died from lack of food, meat-eating dinosaurs would have run out of food and died as well.

Scientists are setting up a system to warn us of asteroids coming toward Earth. If they find one they might be able to blow up the asteroid. They might be able to attach a rocket to the asteroid and push it just enough to miss Earth.

The writer teaches English at Shanto-Mariam University of Creative Technology, Dhaka.



ANCIENT FLIER



A replica of the first person said to have flown with wings displayed at the science museum in central London. The debt owed by European scholars to their Muslim counterparts on everything from water pumps and blood circulation to engineering and map-making was unveiled in a London exhibition on January 21. Pr Salim Al-Hassani, one of the main organisers of "1001 Inventions: Discover the Muslim Heritage in Our World" hopes to illuminate 1,000 years of neglected science from north Africa to China

PHOTO: AFP



SCIENCE QUIZ

Quiz 1
What is the only letter that does not appear in the periodic table of the elements?

- a. L
- b. D
- c. J

Quiz 2
In 1986, 9 moons of Uranus were discovered - what were they named after?

- a. Roman Gods,
- b. British Scientists
- c. Shakespearean Characters

Ans to previous quiz

- Quiz -1
Madam Marrie Currie
- Quiz -2

Ans: sugar

--Collected



MYSTERIES

Revisiting Mohenjo Daro



Faceless Indus Valley City puzzles archaeologists

A well-planned street grid and an elaborate drainage system hint that the occupants of the ancient Indus civilization city of Mohenjo Daro were skilled urban planners with a reverence for the control of water. But just who occupied the ancient city in modern-day Pakistan during the third millennium B.C. remains a puzzle.

"It's pretty faceless," says Indus expert Gregory Possehl of the University of Pennsylvania in Philadelphia.

The city lacks ostentatious palaces, temples, or monuments. There's no obvious central seat of government or evidence of a king or queen. Modesty, order, and cleanliness were apparently preferred. Pottery and tools of copper and stone were standardized. Seals and weights suggest a system of tightly controlled trade.

The city's wealth and stature is evident in artifacts such as ivory, lapis, carnelian, and gold beads, as well as the baked-brick city structures themselves.

A watertight pool called the Great Bath, perched on top of a mound of dirt and held in place with walls of baked brick, is the closest structure Mohenjo Daro has to a temple. Possehl, a National Geographic grantee, says it suggests an ideology based on cleanliness.

Wells were found throughout the city, and nearly every house contained a bathing area and drainage system.

Source: National Geographic