

Features



The Milky Way on a dark night (our galaxy seen edge-on) reveals vast dark clouds of dust particles that we have argued are bacteria and viruses containing the all-pervasive cosmic legacy of life. Inset is the galaxy Andromeda, very similar to our own home galaxy located 2.5 million light years away.

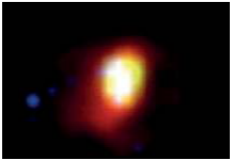
# THE CASE FOR OUR COSMIC ANCESTRY

New data signals a major paradigm shift in science

BY CHANDRA WICKRAMASINGHE  
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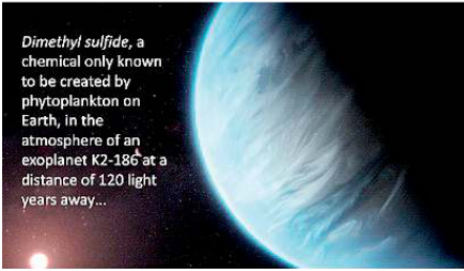
How did life arise? Not just on the Earth, but anywhere in the Universe? Does life emerge on every Earth-like planet that have oceans and an atmosphere by spontaneous processes involving well understood laws of physics and chemistry? Or did it involve an extraordinary, even miraculous intervention? How old is the universe itself? How did it originate, if it indeed did ever originate? Is there evidence of life outside the Earth? In comets, the space between stars in our Milky Way galaxy, on other planets, in other galaxies? Science must necessarily exclude miraculous options of course, but the questions continue to be asked and demand answers. Many of these questions have an antiquity that predates Western traditions that go back to classical Greece in the first century BCE. The answers may have a genesis that goes outside the realm of Western culture. The concepts of zero, infinity (Ananta) all have an Indian origin and are inextricably linked with Hinduism and Buddhism. It could well be for this reason that the idea of an infinite universe has been so forcefully resisted in Western science!

In the past six months many strongly-held opinions in science have been challenged by the arrival of new data. We may be now ever closer to finding answers to the age-old questions to our cosmic ancestry and the origin of the universe. The James Webb Space Telescope (Webb) launched in 2021 is the most powerful astronomical observatory surpassing the range and capabilities of the earlier Hubble Space Telescope. It was designed to see deeper and further into our origins: from the formation of stars and planets, to the birth or possible birth of the Universe itself. Webb is an international partnership between NASA, ESA and CSA. Discoveries using the new James Webb Telescope have shown the existence of galaxies that are much older than the age of the currently fashionable Big Bang model of the universe itself – a universe which is just 13.8 billion years old, barely three times the age of the Earth. This unimpressive smudge of light called CEERS-93316 (Fig.1) was observed by the James Webb Telescope and is presumed to be the most distant galaxy at a



The Galaxy CEERS 93316 at a distance of 35 billion light years from Earth.

distance of about 35 billion light years. This latest discovery, amongst others, lend support to ideas of a steady-state universe with an infinite age, or models of the cosmos involving alternating phases of creation and destruction. These emerging models of the cosmos are remarkably in agreement with ancient Vedic, Hindu and Buddhist ideas.



Another equally important paradigm shift that is happening now relates to the question of the origin of life, and the connection between life on Earth and the wider universe. The Kepler Orbiting Telescope in launched in 2009 was dedicated to discovering habitable Earth-like planets in our galaxy outside the solar system. A large number of such habitable planets have been discovered so far, and a few weeks ago the James Webb Telescope was deployed to study one of these exoplanets in some detail. This “Earth-twin” known by the name K2-186 is located some 120 light years from the Earth. The surprising discovery was a molecule called dimethyl sulphide, along with carbon dioxide and methane, in the atmosphere of K2-186 that has been hailed as definite evidence of extraterrestrial life. The argument hinges on the fact that the molecule dimethyl sulphide appears to be *only* produced by biology on the Earth – by marine plankton in particular. So rather belatedly scientists have accepted that a second living planet exists 120 light years away from the Earth. So, the outstanding question now is *how* and by what processes did life originate on this planet? Or indeed on any other planet? The long-held view (going all the way back to Aristotle in the

third century BCE) is that life emerged and emerges easily and “naturally” on a planet like Earth (or on K2-186, for that matter) as soon as the “right conditions” prevail. The modern version of this concept that has been defended from the dawn of the 20<sup>th</sup> century is the so-called “theory of spontaneous generation”. Without any substantive proof for it and a great deal of contrary evidence this concept remains part of the holy grail of biology.

According to this theory of spontaneous generation organic molecules in the Earth’s oceans are supposed to assemble themselves *naturally* into primitive living systems that subsequently evolve over billions of years to produce the magnificent panorama of life of which we form the most trivial part. Needless to say, there was never any substantive evidence to support this point of view, but nevertheless it was one that has been accepted by the entire establishment of science, more or less like an act of faith.

Experiments to “prove” the process if spontaneous generation and to synthesize life from non-life have continued to be conducted in the most advanced biotechnology laboratories across the world for well over half a century. Every attempt that has been made to replicate the process of spontaneous generation in the laboratory under the widest possible range of conditions has ended in dismal failure. The reason is simple: the probability hurdle needed to go from non-living organics to the simplest evolvable living system is of a scale that is super-astronomical. The origin of life requires a system that transcends the scale of the Earth, our solar system, our Milky Way Galaxy and perhaps involves the entire universe, that is now appearing to be possibly infinite in scale.

The alternative to spontaneous generation of life is the concept of life being a cosmic phenomenon or *panspermia* as it has come to be called. This basic idea has an antiquity in Western tradition that predates Aristotle and is attributed to the pre-Socratic philosopher Anaxoragoras. Anaxoragoras suggested that the seeds of life are all pervasive in the cosmos and they take root and develop into living entities whenever the right conditions prevail. This is the theory of *Panspermia* (from Greek roots: *Spermata* – seed; *Pans* – everywhere). Similar ideas are implied in Buddhist, Hindu and

## THE DUTCH GOVERNOR AND THE BURGERH ARTIST

BY HUGH KARUNANAYAKE  
The following item appeared in a catalogue entitled **Bibliotheca Neerlandica Indica**, issued sometime in 1883 by Martinus Neyhoff a well known bookseller at the Hague. Item: 2299-Fauna of the Indian Archipelago and of the island of Ceylon – a collection of drawings in colour representing birds, mammals,

bold to state, is unmatched by any other country in the world, we are duty bound to acknowledge the pioneering role of Governor Loten in bringing out to the world his fascinating discoveries in Ceylon. Governor Loten was easily the most cerebral colonial Governor of Ceylon, and his intellectual pursuits during his governorship in Ceylon, and thereafter in England and elsewhere is the subject of many



GOVERNOR GIDEON LOTEN



WATER COLOUR BY DE BEVERE FROM THE LOTEN COLLECTION AT THE NATURAL HISTORY MUSEUM LONDON

insects etc of the zindian Archipelago and Ceylon. 144 folio sheets in two part folios – f300

The collection was bought at the auction by PJ van Houten, Chairman of the Council and Committee of the Colonial Museum at Haarlem. In 1905 Van Houten published a memoir on John Gideon Loten and his Ceylonese artist, Pieter Cornelis de Bevere. Van Houten having bought the De Bevere collection in. 1883 described several water colours by the artist and also added biographical information on the artist based on written notes by Loten himself.

John Gideon Loten was the 36 th Dutch Governor of Ceylon, popularly referred to as the “Naturalist Governor of Ceylon”. Loten a virtuoso in his own right, was fascinated by the diversity and natural beauty of Ceylon and he made it his duty to reveal his observations through the myriad contacts he had in the academic and artistic worlds of the eighteenth century. He held office for five years between 1752 and 1757. Although one may say that it took 36 successive Dutch administrations to discover the natural beauty of Ceylon, a country whose biodiversity, I make

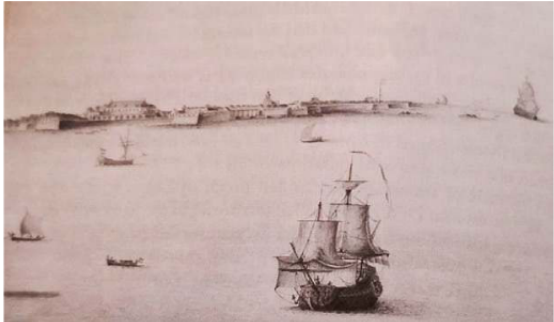
a published work, the latest of which is a 829 page tome entitled “The Life of Governor Joan Gideon Loten (1710 \_1789) a personal history of a Dutch virtuoso.” By Alexander JP Raaf, Hilversum, Verlorem.2010.

The front cover of the book features an illustration by artist Pieter Cornelis de Bevere from his work “Collection of birds from Ceylon” circa 1974. Much of the information presented here is from the book under reference.

The world is indebted to the artist De Bevere for so skillfully reproducing images of Ceylon including not only the diverse flora and fauna of the island, but also of the country’s scenery featuring 18 th Century buildings and constructions which featured in. its landscape. The value of De Bevere’s work would be more appreciated when we realise that the art of photography was yet to be invented, and contemporary 18 th century imagery would otherwise be totally unavailable to today’s aficionado’s of our heritage.

Who was De Bevere then, and what was his connection with the Dutch virtuoso Governor Loten ?

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COLOMBO HARBOUR IN 1768 BY DE BEVERE

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