

Prime Meridian

(143) August 20, 2021

In this issue, we offer some down-to-Earth thoughts as we peer into the evening and early morning skies.

Down here on Earth, fundamental questions are being asked about the future of tourism, in the face of COVID-19 and climate change.

Human ecology is in a runaway condition. This is impacting on the entire global ecosystem. This means that tourism, eco-tourism, and now space tourism, are all part of the process by which our species is arriving in previous secluded places and impacting on them.

Huge changes have taken place down here on Earth. Air travel, in particular, has become the equivalent of a major, long range, annual animal migration.

The first recognised human achievement of reaching the summit of Mount Everest, or Chomolungma to the Tibetans, by Tenzing Norgay (1914-1986) and Edmond Hilary (1919- 2008), took place in 1953. That was less than a human lifetime ago. The top of Everest was once a byword for an inaccessible place, but now, tightly packed lines of crowds headed upwards are a regular feature of the climbing season.

The picture shows the SpaceX Cargo Dragon vehicle, approaching the International Space Station on June 5, 2021. Elon Musk's company is looking at carrying tourists into orbit, around the Moon, and to Mars.



Ecotourism allows people to see, at close quarters, plants and animals which have intrigued them on TV - but this might also harm ecosystems.

A study produced by the CABI (Centre for Agriculture and Biosciences International) on March 11, 2004 warned: "While properly regulated ecotourism can be a good thing, many projects are "unaudited, unaccredited and merely hint they are based on environmentally friendly policies and operations". <https://www.cabi.org/leisuretourism/news/5438>

In her April 20, 2020, article in *Sapiens*, "The Tragic Intersection of the Coronavirus and Ecotourism," Lauren Gilhooly highlights the need for a re-think about the implications.

"The COVID-19 pandemic has exposed the flaws and risks in a supposedly sustainable model of travel. The crisis may push ecotourism advocates to consider new strategies."

"As the coronavirus has spread, tourism sites throughout Asia, Europe, and the Americas have found their revenues nearly eliminated. This has left a staggering number of people under- or unemployed, with no way of knowing when relief will arrive."

"Tourism operators, then, must weigh the cost of exposure to wildlife against the risks of losing the majority of their revenue." <https://www.sapiens.org/culture/coronavirus-and-ecotourism/>

Tourism experts say that with major challenges in the aftermath of the pandemic and looming climate change, researchers into tourism must bring together expertise from a wide range of disciplines.

"Tourism academics should contribute to identifying and helping to implement solutions, but this will require much greater collaboration with the industry and government, as well as with researchers from a broad range of disciplines." Becken, S. (2019). Decarbonising tourism: Mission impossible? *Tour. Recreat. Res.* 244: 419-433. <https://www.tandfonline.com/doi/abs/10.1080/02508281.2019.1598042>

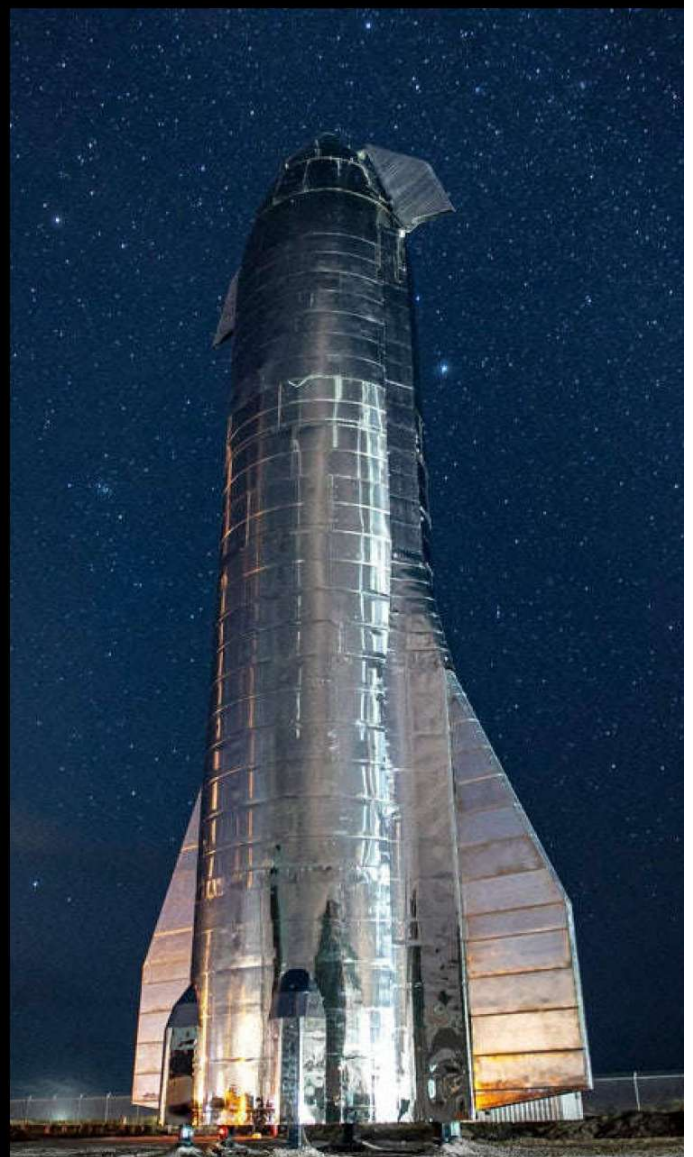
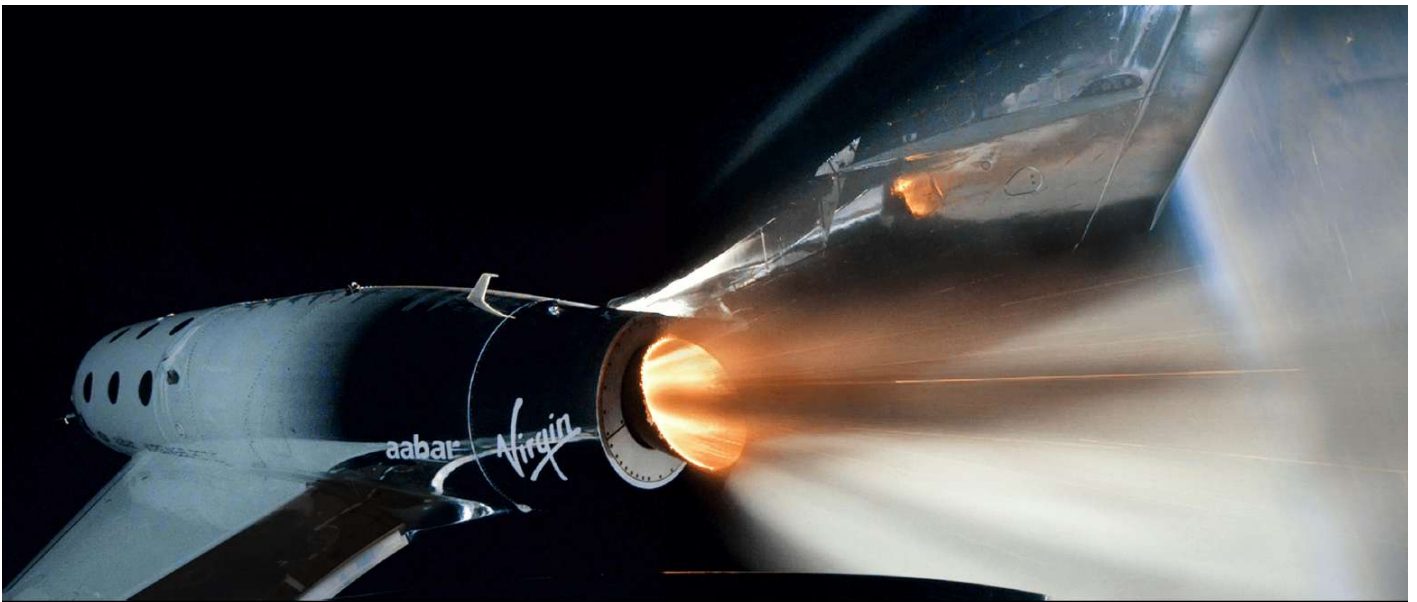
In a 2021 paper entitled "Sustainable Tourism and the Grand Challenge of Climate Change," Daniel Scott (Department of Geography and Environmental Management, University of Waterloo, Waterloo, Canada and School of Hospitality and Tourism Management, University of Surrey, Guildford, UK) argued the case for preparing for the future.

"A critical differentiator is that with development of effective vaccines, society can now foresee a post-COVID-19 pandemic era over the next one to three years. The same cannot be said of the climate crisis, which will not be resolved in the lives of those working in the tourism sector today or even their grandchildren."

"Such calls for enhanced inter- and trans-disciplinary research on climate change and tourism are obviously not new . . . but are imperative if governments are to understand how global tourism is impacted by climate change and not overlooked in the development of response strategies. We in the tourism and sustainability communities must answer this clarion call to shape the future of tourism in a decarbonized and post +3°C world."

"Put bluntly, what we have done for the past 30 years has not prepared the sector for the next 30 years of accelerating climate change impacts and the transformation to a decarbonized global economy." *Sustainability* 2021, 13(4), 1966; <https://doi.org/10.3390/su13041966>

Space tourism has arrived. Space tourism is not new. It can be said to have begun when the journalist Toyohiro Akiyama, was paid by TBS (the Tokyo Broadcasting System) to join the Russian Mir space station, orbiting the Earth (December 2, 1990). What we saw last month, however, was the introduction of trips to the boundaries of space - at least for extremely rich people. We must not forget that we are witnessing feats of engineering. On July 11, Sir Richard Branson joined his Virgin Galactic rocket Unity, that ascended to 85 km. Not long afterwards, on July 20, Jeff Bezos' Blue Origin's New Shepard reached 105.823 km. On this trip to space, Bezos invited 82 year old Mary Wallace "Wally" Funk, a 82 year old aviation pioneer, who had been part of the Women in Space Program. Unfortunately, this project, operated by physician William Randolph "Randy" Lovelace II (1907-1965), who had played a key role in NASA's Mercury program, had not enjoyed US government funding. Wally Funk has now become the oldest person to visit space.



Above and top right: Pictures from Sir Richard Branson's Virgin Galactic project, with Branson floating in space. Below left: Jeff Bezos and his crew by his vehicle.

Below right: This is an image from SpaceX of Elon Musk's Starship. This kind of vehicle is intended to carry 100 passengers, swoop around the Earth, enter Earth-orbit, or visit the Moon or Mars.



June 2021: Sun, Earth, Moon and planets.

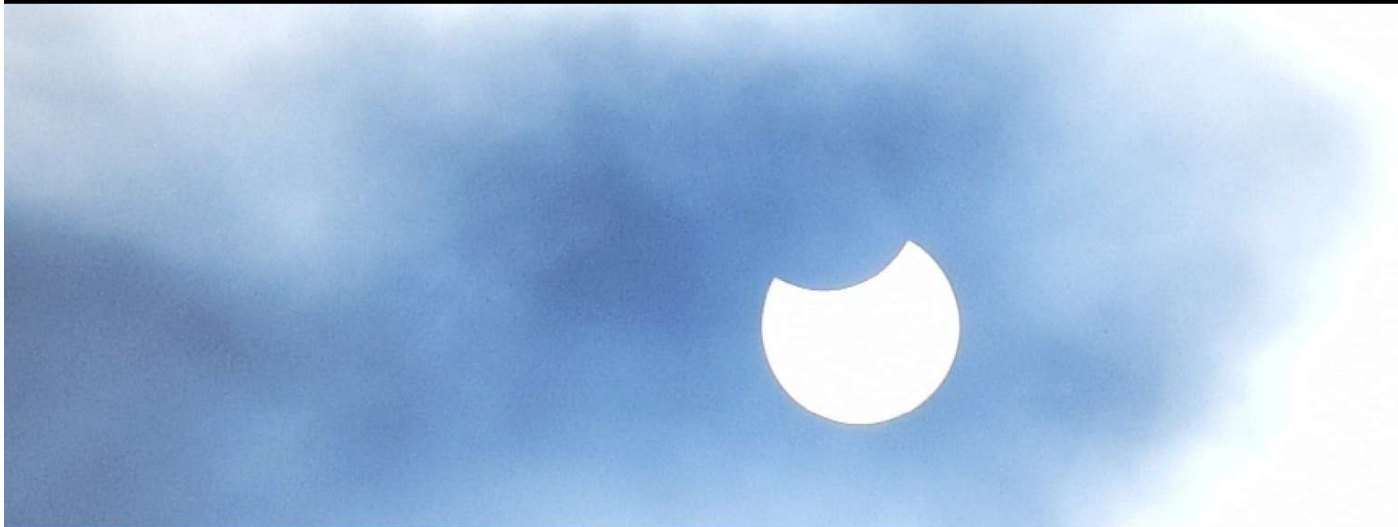
Right now, neither the Moon nor Mars have been colonised and we are seeing worlds as yet empty of human occupation.

The closest that most of us can get to space tourism is to go outside on a clear night and enjoy them with our unaided eyes, binoculars or telescopes.

On the last pages, we look back on the month of June, and remind ourselves of early summer skies in 2021.

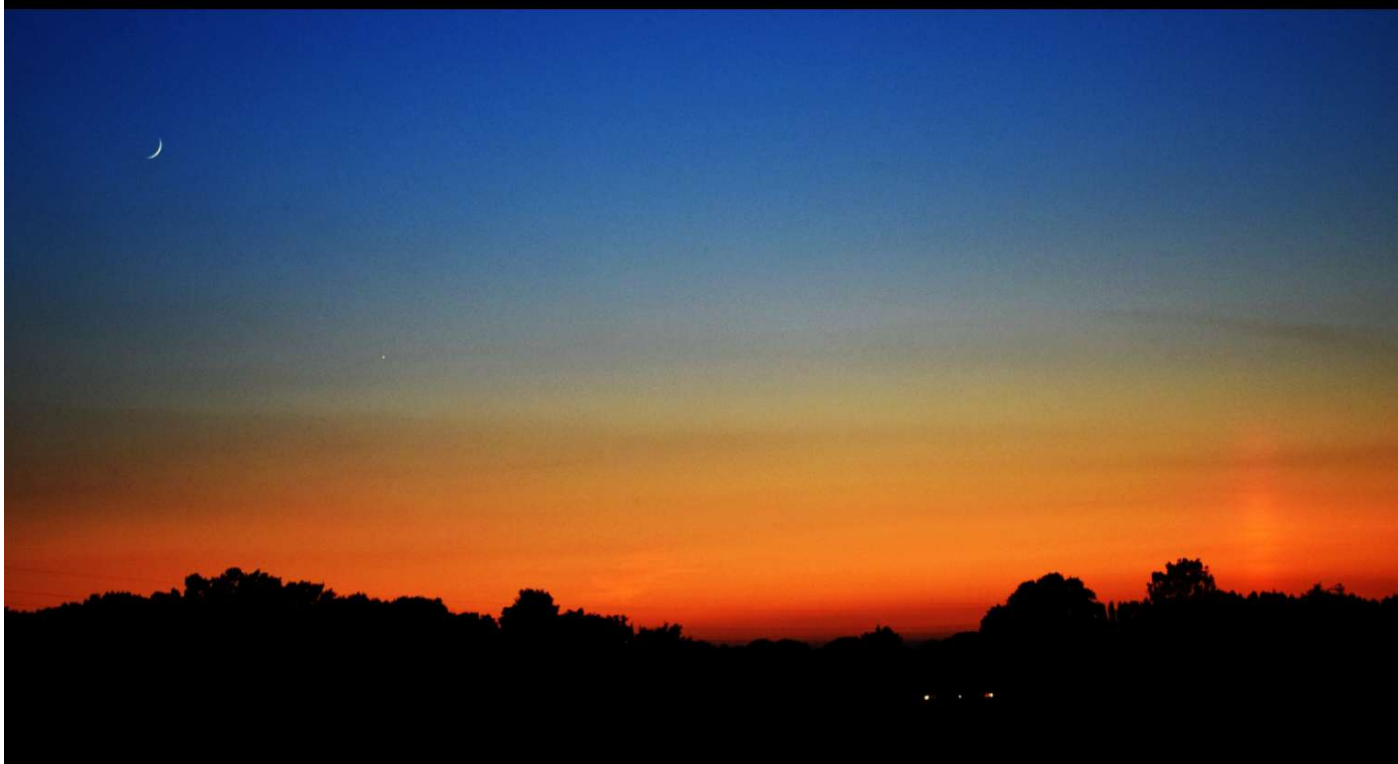
Two views during the early and late weeks of June, 2021. Above: Heading towards the Summer Solstice (June 21), the Sun is seen from clouds over a hedgerow at Ash. Below. Waxing Moon on June 23, New Ash Green, Kent.





A partial eclipse of the Sun occurred on June 10, 2021, and was visible in the UK. The images above were taken from the NOAA's DSCOVR probe. The central picture was taken from New Ash Green, Kent. Safety note: Do not look at the Sun, through cameras, binoculars or telescopes.

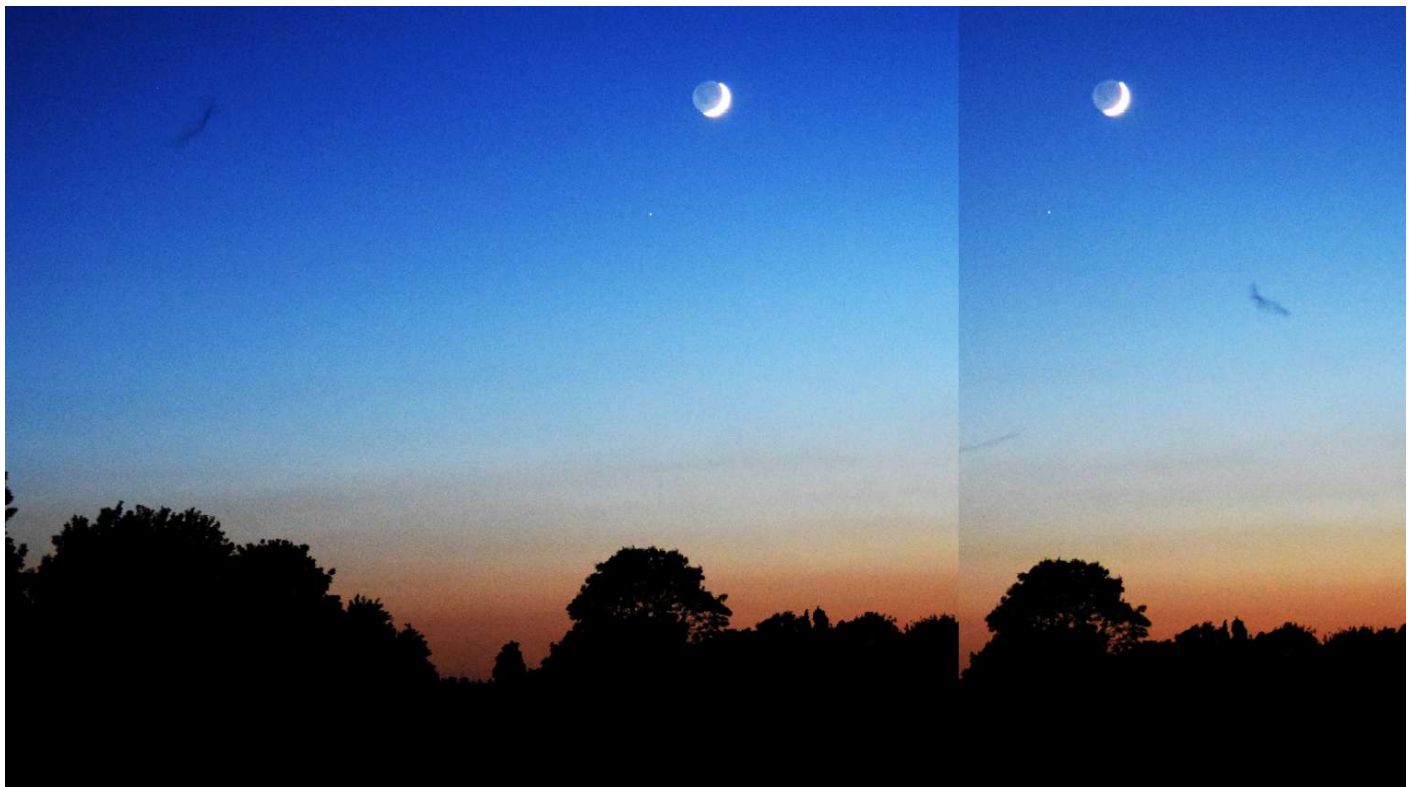
This picture below caught a Sun pillar, shortly after sunset, and the waxing Moon. A closer look, down and right from the Moon, will show the planet Venus. June 12, 2021.





These are two satellite images including Southern England, around the middle of the month, on June 13, 2021. The top one was taken from NOAA's DSCOVR probe, located at the Sun-Earth L1 Lagrange point, where, despite being 1.5 million km inwards from Earth, it follows the Earth in its orbit. Image at 11:59:12 UTC. The lower picture is from the (EOS AM-1) Terra satellite. This is a multi-national, NASA scientific research satellite in a Sun-synchronous orbit around the Earth.





On June 13, 2021, a crescent Moon, lit only on its dark side by Earth-shine, lay close above the planet Mars.

The top two pictures caught the images of bats sweeping through the summer evening.

The lower picture (left) provides a good view of the Earth-shine, revealing the darker maria areas - once called "seas," but actually hit by collisions with smaller objects during the early days of the Solar System, and later flooded by dark lava flows.

Mars lay 349.086 million km from the Earth on June 13. It is a small planet, slightly more than half the radius of the Earth and with a mass slightly more than ten percent of that of the Earth. It has a very thin atmosphere, mostly of the gas carbon dioxide, and mostly extremely cold.

As we seen Mars in the evening sky, we are seeing a world presently being explored by robot probes from the USA and China. The search for life, past or present, is continuous.

Meanwhile, the bats hunting for moths in our own summer skies remind us that the Earth is a living planet in need of our protection.





Above: Views of the Moon from the International Space Station.

Left: a waning Moon was taken from above the Atlantic Ocean off the coast of Brazil. June 1.

Right shows a waxing Moon from above the Indian Ocean, south of India. June 21, 2021.

The Full Moon was taken from New Ash Green, Kent in the early hours of the morning on June 24, 2021.

Prime Meridian.

Prime Meridian is published by the Ecospheres Project, a research and media collaboration. It follows global environmental issues alongside the cycle of the seasons in South East England. It steps back to look at the Earth in its astronomical context and it pursues the search for other habitable worlds.

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Many thanks for support and assistance: Palash Dave, Lienkie Diedericks, Laura Elworthy, Elizabeth Gornall, Nadia Mahmud-Salvisberg, Veronica Mariqueo, Marolin Watson, Ashleigh Wise, and thanks also to an anonymous review.

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