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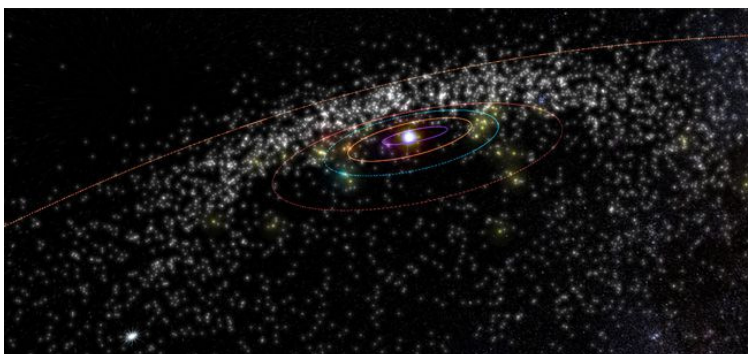
By Janet Mayes  
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## *Astronomical imperialism!*

On the 50th anniversary of the first U.S. space land grab on July 20, when the Apollo 11 mission planted a U.S. flag on the moon, there was intensified hoopla about research in astronomy and future space travel. However, buried in the romantic exhilaration are motives that are anything but benign.

The world's richest billionaires are in on the space race and are investing untold millions of dollars to reap enormous financial gain. Private corporations are investing heavily in not just space tourism, but in plans to mine the moon and the asteroid belt to obtain materials that will yield huge profits.

The imperialists' ultimate goal: appropriating the solar system's moons and Mars to establish ownership for future mining, strategic U.S. military bases and settlements. The struggle against imperialist hegemony must oppose Pentagon domination and capitalist exploitation of the newest target: outer space.



**Asterank database of over 600,000 asteroids. Using that information, Asterank, owned by Planetary Resources, explains, “[W]e can estimate the costs and rewards of mining asteroids.”**

### **‘Star Wars’ not sci-fi**

The possibility of space wars is no longer just in “Star Wars” creator George Lukas’ mind. It is real.

While corporations scheme to gain riches, the Pentagon’s militarization of space is intensifying to protect capitalist interests and uphold U.S. domination. In 2018, Commander in Chief, President Donald Trump ordered the Department of Defense to set up a sixth branch of the military, the U.S. Space Force, which is slated to be established by 2020.

In March, the DoD submitted a \$2 billion budget to Congress to be parsed out over five years. So far, the House Appropriations Committee has allocated \$15 million, while its counterpart in the Senate agreed to \$72.4 million for fiscal year 2020.

The DoD’s proposal asserted: “The establishment of the U.S. Space Force will help ensure the United States is postured to deter aggression and outpace potential adversaries in order to protect and defend our national interests.” The militarists claim this is due to “a changing space environment and growing threats.”

The Pentagon’s stated goals are to: “Fundamentally transform our approach to space; establish the U.S. Space Force; maximize warfighting capacity and advocacy for space; outpace future threats [and] defend our vital national interests in space.” ([tinyurl.com/y39tqeze](http://tinyurl.com/y39tqeze))

Also, according to Reuters, “NATO aims to recognize space as a domain of warfare this year ... partly to show ... Trump that the alliance is relevant and adapting to new threats, after he signed off on the creation of a U.S. Space Force.” (June 21)

In another ominous development, the U.S. Space Command — SPACECOM — is being established as the precursor to the U.S. Space Force. Trump announced Aug. 29, “As the newest combatant command SPACECOM will defend America’s vital interests in space — the next warfighting domain. The Space Force will organize, train and equip warriors

to support SPACECOM's mission." That would uphold U.S. dominance in space because "the best way to prevent conflict is to prepare for victory," quoted that day's New York Times.

Defense News listed SPACECOM's missions: "to deter potential adversaries in space, defend American assets in orbit [includes spy satellites], deliver war-fighting capabilities to other combatant commands and to develop joint war fighters to ... operate in the space domain." Already, 287 military personnel have been moved from the U.S. Strategic Command into SPACECOM. (Aug. 29)

The article quotes Air Force Gen. Jay Raymond, the new head of SPACECOM, as saying, "We are at a strategic inflection point. There is nothing that we do that isn't enabled by space." He states "the best way ... to deter a conflict from extending into space ... is to be prepared to fight and win."

"A sharper focus," Raymond stresses, will be put on "dangers from other nations in space ... including competitors such as China and Russia ... and any other future competitors who might gain space capabilities." Iran is also cited as a country "willing to invest significant national capital to put national assets into orbit."

There is no doubt that the Pentagon and White House are sending a clear warning to Russia, China, Iran and any other countries that they view as global competitors, and informing them that the U.S. is staking its claim to supremacy over space technology — and over outer space itself.

In contrast, North Korea passed the Law on Space Development in 2013, which governs its National Aerospace Development Administration. In addition to opposing the militarization of space, it includes international cooperation and respect for international law and regulations for space.

Notably, unlike North Korea, the U.S. does not have a declaration that opposes the militarization of space.

### **Astronomical science age-old**

Contemporary scientists and the public are fascinated by the possible existence of life on other planets and their satellites, and have built huge telescopes that examine the origin of the universe by peering backward in time. Moon landings and stories about projected colonies on and beyond Mars stimulate people's imaginations.

However, in reality, astronomical science has been around ever since humans looked skyward. For tens of thousands of years, Aboriginal peoples in what is now "Australia," have handed down through storytelling their knowledge about the constellations to accurately predict the seasons, when to plant and more. Pacific Islanders navigated the Pacific Ocean by the stars, passing down their knowledge through song from generation to generation.

Ancient and Indigenous peoples studied the stars for timekeeping, designing calendars and predicting eclipses. These include the East African peoples of Nomoratunga, the Sumerians and Akkadians of ancient Mesopotamia, the Minoans, Indus Valley peoples and peoples living in China as early as 3,000 BCE.

In the Western Hemisphere, the Aztecs developed a complex calendar and the Incas used their knowledge of astronomy in agriculture. For the Papago Indigenous of Arizona, Sicangu Oyate Lakota and other Indigenous peoples, their knowledge of the skies played a major part in agriculture and other essential areas of their lives.

Astronomical developments occurred in the Muslim world, as early at the 9th century CE, in the Middle East, Central Asia and North Africa, mostly written in Arabic. Ulugh Beg, a 15th century Muslim sultan, known for his precise astronomical measurements, built in Samarkand, Uzbekistan, the largest observatory in Central Asia at the time.

In 1609, Galileo perfected the telescope and proved that Copernicus was right: The earth revolves around the sun. The Vatican found him "suspect of heresy" and put him under house arrest for life.

In another example of science for its own sake, scientists recently substantiated Einstein's theory of general relativity using the Keck Observatory, Gemini Observatory and Subaru Telescope in Hawai'i.

Historically, however, astronomical science has not always advanced scientific knowledge, but has been harnessed for warfare, plundering and colonizing. In 1504, Columbus successfully threatened Indigenous people of Xaymaca with a lunar eclipse, predicted by his mariner's almanac, unless they provided food for his crew. British colonialists renamed the island Jamaica.

European conquerors steered their ships using celestial navigation. Right after Galileo perfected the telescope, he showed the Doge (leader) of Venice how to identify enemy ships 10 times farther away than they previously could.

“Accessory to War: The Unspoken Alliance Between Astrophysics and the Military,” a book written by astrophysicist Neil deGrasse Tyson and historian Avis Lang, chronicles the historical use of astronomy for war and conquest up to the present day.

### **The space ‘Gold Rush’**

Between the orbits of Mars and Jupiter lies the asteroid belt replete with precious metals, including iron, nickel, gold, cobalt and platinum. Tyson suggests the first trillionaire will be an asteroid miner. Space mining companies, including Planetary Resources, estimate the asteroid Davida is worth \$100 trillion, over five times the U.S. gross domestic product.

How will countries and private asteroid prospecting companies get there? When split into hydrogen and oxygen, water becomes rocket fuel. So, the first order of business is to mine for water on the moon, eventually using it as a launching pad for reaching nearby water-laden asteroids from which to travel farther. According to Science Focus, Planetary Resources aims “to bake the water out of these rocks, turning them into Space Age petrol stations.” ([tinyurl.com/y4pebs7w](http://tinyurl.com/y4pebs7w)) Not to mention plucking water from the icy rocks in Saturn's rings.

However, the biggest payload is nearby and plentiful for the scooping. Lunar dust, the upper layer of the moon's regolith (layer of unconsolidated rocky material covering bedrock), abounds in helium-3, an estimated 1 million tons. When brought to Earth and processed, it is theorized that 25 percent of lunar helium-3 might provide an alternative clean energy source for the entire Earth for five centuries. It is valued at an estimated \$5 billion a ton.

## **Companies vie for riches**

Among the companies vying for the booty are Moon Express and NanoRacks. Some have partnered with the National Aeronautics and Space Administration to stake out claims starting in 2020.

The British-based Asteroid Mining Corporation, after touting its benign motives, boasts: “[W]e will also gain a much deeper understanding about humans as a species and as a civilisation [sic], finding answers to ... questions, such as ‘Are we alone in the Universe?’ and get incredibly rich in the process.” ([tinyurl.com/y58jpvzf](http://tinyurl.com/y58jpvzf)) The company predicts asteroids will be mined by 2030.

Britain, France, India, Iran, Israel, Japan, Luxembourg and Russia are also in the space race. These countries, along with China and North Korea, are parties to the Outer Space Treaty that covers cooperation and peaceful utilization of space. It forbids national appropriation of celestial bodies but allows a state to maintain jurisdiction over a space object. The treaty does not protect against space tourism, estimated by Swiss bank UBS to be worth \$805 billion by 2030, nor does it cover mining by private and public entities.

It is not surprising that China and North Korea have developed sophisticated space programs for their own economic and strategic protection. Their leaders know the U.S. history of breaking treaties, going back to the plundering of Indigenous lands and resources, and are quite cognizant of corporations’ financial motives and imperialist governments’ military and strategic goals.

Because China has now landed two rovers on the moon, with the third scheduled for December 2019, Washington has ratcheted up funding to establish dominance over the moon as quickly as possible. Some corporate profiteers may be concerned that China is exploring the potential of obtaining helium-3 to make it available on Earth before Western companies and governments can obtain the gas and reap megaprofits from its sale — and predominate on the moon to protect their assets.

## **Billionaires invest in space ventures**

Billionaire Elon Musk, CEO of Tesla, has invested in multimillion-dollar space ventures. His SpaceX ticket to the moon is estimated to cost \$35 million. His company recently

signed a \$1.6 billion contract with NASA to facilitate space colonization and travel to Mars. In preparation for Hurricane Dorian, SpaceX coordinated with its partners at Cape Canaveral Air Force Station and Kennedy Space Center to protect its facilities there.

Facebook's CEO Mark Zuckerberg is on the board of Starshot, whose mission is to reach Alpha Centauri within a generation. Alpha Centauri is the closest planetary system to the solar system — 4.37 light-years or 25.7 trillion miles from the Sun.

Other billionaires who have invested millions of dollars in space ventures include Amazon owner Jeff Bezos, who established the Blue Origin company; Richard Branson, whose spaceflight company Virgin Galactic is part of the Virgin Group; and Google co-founder, Larry Page, backer of the space-mining company Planetary Resources. They make massive investments in these projects rather than pay decent salaries to the workers whose labor they exploit to make them rich.

In June, NASA announced it will open the International Space Station to non-NASA employees to conduct “commercial and marketing activities” to fund ongoing missions on the station. Boeing and SpaceX are slated to replace Russian-made rockets that currently carry astronauts to the station at \$82 million a seat.

### **Profiteers plan to plunder solar system**

To mine for extraterrestrial gold, private companies are setting their sights on exerting dominance over the moon and other areas of space, as so-called “explorers” plundered and grabbed Indigenous lands around the globe. Employing well-funded research and development, they are mapping out areas to occupy, first on the moon and then on Mars. Their sights are far-ranging, perhaps extending to establishing societies on a moon of Jupiter or Saturn. The history of rampant imperialist ecological destruction precludes the preservation of these solar bodies.

Shockingly, Musk has advocated exploding nuclear bombs on Martian poles to chemically warm its atmosphere for human habitation. (Business Insider, 2019)

Martin Elvis, astrophysicist, and Tony Mulligan, philosopher, propose, in the September issue of *Acta Astronautica*, that humans use up only one-eighth of the resources available in the solar system — i.e., for ownership and plundering, with the rest set aside as

“wilderness.” ([tinyurl.com/y5qrz6v8](http://tinyurl.com/y5qrz6v8)) But the historical encroachment on U.S. public lands shows how profiteers will grab any land they can to make super-profits.

### **No corporate land grabs anywhere!**

Environmental exploiter-in-chief Trump issued a proclamation that opened over 2 million acres of Bears Ears and Grand Staircase-Escalante National Monuments in Utah for corporate mining and drilling in December 2017. A longtime struggle by five Native nations won national monument status for the park to protect Indigenous cultural sites in 2016. These nations, joined by scientific organizations, conservation groups and others are legally contesting Trump’s action.

It is intriguing to imagine possible life on exoplanets and their moons which could be in the habitable “Goldilocks zone” — meaning not too hot and not too cold. The newest, projected telescopes are well-equipped to locate such entities for future settlements. These telescopes are not just designed for “pure” science, even though the literature about the projected Thirty Meter Telescope claims otherwise.

Significantly, the Kānaka Maoli people in Hawai’i are protesting TMT’s installation on Mauna Kea because it is a sacred site for all Pacific Islanders, a conservation site and the watershed for Hawai’i, the Big Island.

It is not unreasonable to assume that some obscenely wealthy individuals are planning their “escape route” from Earth’s impending climate catastrophe. Searching for new sites in space on which to establish these “elite” societies would appeal to them more than pooling their resources to save this planet.

However, to combat the growing climate crisis, the focus should be on stopping capitalist degradation of this planet. Everyone who is concerned about this growing disaster should join the protests to confront global warming caused by greenhouse gases. Ultimately, system change is crucial for the sake of all life on planet Earth.

*Janet Mayes, an amateur astronomer, authored a science fiction novel about U.S. hegemony in space, “Beyond the Horse’s Eye, a Fantasy Out of Time,” under the pen name Janet Rose. A review can be found at [tinyurl.com/y6fzefun](http://tinyurl.com/y6fzefun).*



*Kathy Durkin contributed to this article.*