## NC (:40)

China’s Jade Rabbit lunar program prioritizes helium-3 extraction over space ILaw which prioritizes EP. **Brooks 2-25** writes[[1]](#footnote-1)

“I know I may not make it through this lunar night.” The China Academy of Space Technology laid the pathos on thick when it gave its lunar robot **Jade Rabbit** a farewell speech at the end of last month. The rover had become mired in moon dust and was unable to enter hibernation. Facing 14 days without sunlight, the solar-powered robot, launched on 2 December, was unlikely to survive. “Good night, Planet Earth,” it said. “Good night, humanity.” It looked like the end of a venture that **could have accelerated the process of finding out who** – if anyone – **owns the moon**. The ultimate goal for Jade Rabbit was to bore a hole in the moon and see what moon rock is made of. That’s because **the Chinese** think the moon’s minerals might be worth extracting. “They **are looking at feasibility for mining** the moon, and they are likely to do it if there’s a strong business case,” says Richard Holdaway, director of the space division at the UK’s Rutherford Appleton Laboratory, which collaborates closely with China’s space programme. There would be nothing illegal about such an operation because international laws covering the moon are “way, way behind”, as Holdaway puts it. In theory, anyone who could manage it (and afford it) could go to the moon tomorrow, dig out a huge chunk of lunar rock, bring it back to earth and sell it off to the highest bidder. The Chinese could take the moon apart and sell it bit by bit without breaking international law. The question we have to ask ourselves is simple: do we see a need to prevent that happening? The moon’s bounty is not fanciful science fiction. “There is stuff on the moon to mine – no doubt about it,” Holdaway says. We know that minerals that are hard to find on earth, such as the “rare earth” elements and the metals titanium and uranium, are abundant up there. But **the main prize is** the lighter isotope of helium, known as **helium-3**. This gas is the critical fuel for nuclear fusion reactors, which promise an energy yield many times higher than the present generation of fission-powered reactors. Helium-3 costs roughly $10m a kilo. Though we don’t yet have commercial fusion reactors, these might not be far off. When they arrive, the demand for helium-3 will outstrip supply, and the easiest place to get more will be from moon rock. It couldn’t be easier: heat the rock and the gas comes out. It’s not just the Chinese who have ambitions in this direction. Some private companies also have their eye on lunar rock as a source of riches. Most are based in the US, and they are actively working on lunar landers that will eventually be able to perform mineral extraction. As yet, it is very hard to know whether the business case will stand up. It’s not a small endeavour to set up a factory on the moon. It is horrendously expensive to leave Planet Earth. Space on a shuttle is sold, like poultry, by weight. The cost of escaping the earth is roughly $25,000 per kilo. Anyone paying that kind of money upfront needs strong guarantees that the investment is worthwhile. That is why the space entrepreneur Robert Bigelow has asked the US government to nail down issues raised by who can mine the moon. “The time has come to get serious about lunar property rights,” he told a press briefing last November. Bigelow made his money in hotels and property and has decided to pursue accommodation in space as his next venture. He already has a contract to supply astronaut habitats to Nasa; he has also said he wants to build habitats on the moon and, eventually, Mars. That plan, he argues, will be compromised unless issues of lunar ownership are clarified. Two treaties cover the beyond-earth behaviour of nations and private companies. The oldest is the Outer Space Treaty of 1967. It says that “the exploration and use of outer space … shall be carried out for the benefit and in the interests of all countries … and shall be the province of all mankind”. The agreement wasn’t drawn up to deal with questions of property rights, however. “It strictly prohibits claims by sovereign nations, but it does not expressly prohibit private entities from claiming private property rights,” says Michael J Listner, a New Hampshire-based lawyer specialising in space policy. “Depending on who you talk to, that omission creates a loophole for private ownership rights.” One of the purposes of the treaty was to allow private companies to engage in activities in space, creating the opportunity for establishing commercial satellite networks, for instance. Back when the pact was developed, the Soviet Union argued that nation states were the only proper actors in space; the US wanted to give private companies a chance to exploit the new frontier. So, a compromise was reached: Article VI says that non-governmental organisations have to be supervised by their nation states. The treaty says nothing about those non-governmental actors claiming property rights, however. “It doesn’t prohibit them, it doesn’t allow them. It’s completely silent,” says Joanne Gabrynowicz, a professor emerita of space law at the University of Mississippi who acts as an official observer to the UN effort to oversee the legal framework governing use of space. This gaping hole in the legislation is where the 1984 Moon Agreement comes in. **The U**nited **N**ations Office for Outer Space Affairs hosts the agreement, which **states that the moon’s environment should not be disrupted**, that it should be used only for peaceful purposes**, “that the moon and its** natural **resources are the common heritage of mankind”** and that “an international regime” should be established “to govern the exploitation of the natural resources of the moon when such exploitation is about to become feasible”. It sounds cut and dried: no one can own bits of the moon without further negotiations. The problem is that the seven nations which have ratified the Moon Agreement have no investment in it – they are not space-faring. “It’s considered pointless because the US, China and Russia didn’t even become a party to it,” Listner says. “If any of the three had done that, it might have been more meaningful.” Holdaway agrees: “**It’s not legally binding. China could** send armies of robots and humans and **effectively stick a flag in the ground and say: ‘It’s ours.’ ”**

Jade Rabbit’s key to space exploration – spills over to other developing countries.

**Daily Galaxy 13** writes[[2]](#footnote-2)

**China launched** its first ever extraterrestrial landing craft the Yutu or **Jade Rabbit** buggy— a solar-powered, six-wheeled vehicle similar to ones the United States has sent to Mars- into orbit. Chang'e-3 lunar probe blasted off on board an enhanced Long March-3B carrier rocket from the Xichang Satellite Launch Center in China's southwestern Sichuan province at 1:30 am (1730 GMT). In two weeks, when the landing vehicle is scheduled to descend on the moon and release the Jade Rabbit, or Yutu, robotic rover to start sending back data and pictures from Sinus Iridum, or the Bay of Rainbows, a basaltic plain formed from lava that filled a crater. China's President Xi **Jinping** has said he **wants China** to establish itself as **a space superpower. The mission has inspired widespread pride in China's** growing **tech**nological **prowess, with a goal of sending a human to the moon** some time **after 2020.** Chinese state-run television broadcast footage of the rocket’s perfect launch and ascent into space, where the Chang’e-3 craft set off toward the moon. In 2007, China launched its first moon orbiter, the Chang'e-1 - named after a lunar goddess - which took images of the surface and analysed the distribution of elements. Now, The rover's mission will be to conduct geological surveys and search for natural resources after the probe touches down on the moon in mid-December as China's first spacecraft tt make a soft landing beyond Earth. The latest manned space mission in June, three astronauts spent 15 days in orbit and docked with an experimental space laboratory, part of Beijing's quest to build a working space station by 2020. If the lunar mission is successful, China will become the third country, after the United States and the former Soviet Union, to soft-land on the moon. **Beijing** stresses that its space program is for peaceful purposes. It **will share** the **tech**nological **achievements of its manned space programme with other nations, especially developing ones**, and will offer to train astronauts from other countries. “If it’s all successful, it will certainly indicate that they have really come up the learning curve in terms of technology,” said Joan Johnson-Freese, a professor of national security affairs at the United States Naval War College in Rhode Island who researches China’s space activities. Professor Johnson-Freese. “China’s getting a lot of prestige, which turns into geostrategic influence, from the fact that they are the third country to have manned spaceflight capabilities, that they are going to the moon." In 2007, Chang’e-1 blasted off from the Xichang Satellite Launch Centre, Sichuan, atop a Long March 3A rocket -the first step in the Chinese ambition to land robotic explorers on the Moon before 2020. Chang’e-1 has four year-long mission goals to accomplish. The first is to make three-dimensional images of many lunar landforms and outline maps of major lunar geological structures. This mapping will include the first detailed images taken of some regions near the lunar poles. Chang’e-1 was also designed to analyze the abundance of up to 14 chemical elements and their distribution across the lunar surface. Thirdly it measured the depth of the lunar soil and lastly explored the space weather between the Earth and the Moon. Earlier in 2007, shortly after Russia claimed a vast portion of the Arctic sea floor, accelerating an international race for the natural resources as global warming opens polar access, China has announced plans to map "every inch" of the surface of the Moon and exploit the vast quantities of Helium-3 thought to lie buried in lunar rocks as part of its ambitious space-exploration program. Ouyang Ziyuan, head of the first phase of lunar exploration, was quoted on government-sanctioned news site ChinaNews.com describing plans to collect three dimensional images of the Moon for future mining of Helium 3: "There are altogether 15 tons of helium-3 on Earth, while on the Moon, the total amount of Helium-3 can reach one to five million tons." "**Helium-3 is considered** as a long-term, stable, safe**, clean and cheap material for** human beings to get **nuclear energy** through controllable nuclear fusion experiments," Ziyuan added. "If we human beings can finally use such energy material to generate electricity, then China might need 10 tons of helium-3 every year and in the world, about 100 tons of helium-3 will be needed every year." **Helium 3** fusion energy - classic Buck Rogers propulsion system- **may be the key to future space ex**ploration **and settlement, requiring less radioactive shielding, lightening the load.** Scientists estimate **there are about one million tons of helium 3 on the moon, enough to power the world for thousands of years**. The equivalent of a single space shuttle load or roughly 25 tons could supply the entire United States' energy needs for a year. Thermonuclear reactors capable of processing Helium-3 would have to be built, along with major transport system to get various equipment to the Moon to process huge amounts of lunar soil and get the minerals back to Earth. While this emerging international community claims it's slice of the aerospace universe, the U.S., by contrast, is no longer a leader but simply a player, according to nationally renowned astrophysicist Neil deGrasse Tyson, who points out that "we’ve moved backward just by standing still."

Space exploration solves multiple scenarios for extinction. **Baum 10** writes[[3]](#footnote-3)

**A**nother non-market **benefit of space ex**ploration **is reduction in the risk of** the **extinction** of humanity and other Earth-originating life. **Without space col**onization**,** the **survival of humanity** and other Earth-originating life **will become** extremely difficult – perhaps **impossible** – over the very **long term.** This is because the Sun, like all stars, changes in its composition and radiative output over time. The Sun is gradually converting hydrogen into helium, thereby getting warmer. In some 500 million to one billion years, this warming is projected to render Earth uninhabitable to life as we know it [25] and [26]. Humanity, if it still exists on Earth then, could conceivably have developed technology to survive on Earth despite these radical conditions. Such technology may descend from present proposals to “geoengineer” the planet in response to anthropogenic climate change [27] and [28].2 However, later – around seven billion years later – the Sun will lose mass that spreads into Earth's orbit, causing Earth to slow, be pulled into the Sun, and evaporate. The only way life could survive on Earth would be if, by sheer coincidence (the odds are on the order of one in 105 to one in 106 [29]), the planet happened to be pulled out of the Solar System by a star system that was passing by. This process might enable life to survive on Earth much longer, although the chances of this are quite remote. While **space col**onization **would** provide a hedge against these very long-term astronomical threats, it would also provide a **hedge against** the more immediate threats that face humanity and other species. Such threats include **nuclear war**fare**, pandemics,** anthropogenic **climate change, and disruptive tech**nology**.** Because **these threats would** generally **only affect life on Earth and not** life **elsewhere**, self-sufficient space colonies would survive these catastrophes, enabling life to persist in the universe. For this reason, space colonization has been advocated as a means of ensuring long-term human survival [32] and [33]. Space exploration projects can help increase the probability of long-term human survival in other ways as well: **technology developed for space ex**ploration **is central to** proposals to **avoid threats from large comet and asteroid impacts.**

# Impacts

## Oil Dependence Impact (Econ Heg, :58)

Note: “Jade Rabbit” and “Yutu” are the same thing.

Jade Rabbit will spark a new space race for helium-3.

**Reynolds 13** writes[[4]](#footnote-4)

On Saturday, a Chinese lunar probe made the first soft landing anyone's made on the moon since 1976. The Chang'e-3 probe means that China is one of only three countries -- joining the United States and the old Soviet Union -- to accomplish such a feat. The probe includes an unmanned rover named **Yutu** that **will** spend several months exploring "geological structure and surface substances and **look**ing **for** natural **resources**.'' But will China try to claim the ground it explores? Possibly. Though the landing was a big deal in China, most of the rest of the world responded with a yawn. Moon landing? Been there, done that. But October Sky author Homer Hickam was more excited. He wondered on Twitter if China might want to make a territorial claim on the moon, noting that the area the lander is exploring may contain an abundance of **Helium-3**, a potentially valuable fusion energy fuel that **is found only on the moon**. According to former astronaut/geologist Harrison Schmitt, **China "has made no secret" of** its **interest in Helium-3**. Schmitt observes, "I would assume that **this mission is** both **a geopolitical statement** and a test of some hardware and software related to mining and processing of the lunar regolith." Followed by a mining claim, perhaps. Is that possible? Well, **China seems** pretty **big on making territorial claims lately. And**, really, **there's not a lot to stop them**. The 1967 Outer Space Treaty provides that "outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." But that's not much of a barrier. First, the treaty only prohibits "national appropriation." If a Chinese company, instead of the Chinese government, were to stake a claim, it wouldn't apply. And, at any rate, China -- which didn't even join the treaty until 1983 -- can, like any other nation, withdraw at any time. All that's required under the treaty is to give a year's notice. So if the the Yutu rover finds something valuable, Chinese mining efforts, and possibly even territorial claims, might very well follow. And that would be a good thing. What's so good about it? Well, two things. First, **there are American companies looking at doing business on the moon**, too, **and a Chinese venture would probably boost their prospects**. More significantly, a Chinese claim might spur a new space race, which would speed development of the moon. **The** 1960s **space race between the U**nited **S**tates **and** the old **Soviet Union saw rapid progress in space tech**nology. We went from being unable to put people in Earth orbit, to landing men on the moon and returning them safely to earth, repeatedly, in less than a decade. **It happened so fast because each nation was afraid the other would get there first**. The 1967 Outer Space Treaty, in fact, was basically a deal to throw the contest out. Each nation was more afraid of being beaten than it was, really, anxious to win itself. As soon as the ink on the treaty was dry, space efforts began to dry up, too. That's one reason why no one has had a soft landing on the moon in almost 40 years -- and why it's been 41 years almost to the day since the last man, astronaut Eugene Cernan, stood on the moon. **If**, like me, **you'd like to see** a gold rush on the moon -- or, at least, **a Helium-3 rush** -- then **a Chinese claim might** be just the thing to **get it started**. Personally, I'm hoping Hickam's prediction is right.

Helium-3 development solves Middle East oil dependence.

**D’Souza et al 6** write[[5]](#footnote-5)

Energy is the most important driving force for powering industrial nations. In fact, a measure of a country’s industrialization is its annual energy consumption. Fossil fuels like coal, petroleum and natural gas are the chief means by which most nations get their energy. Because of the world’s increasing standards of living and its increased dependence on oil, **fossil fuel** amounts **might not last longer than a few decades**. Also **with the world’s population expanding to almost 12 billion by** the year **2050,** our **oil demand will** also **increase drastically**. Oil has become a key issue in the political and economic affairs of many nations especially after the United States second war with Iraq. **In** such **cases of crisis,** the **development of He-3 will alleviate** the **dependency on** crude **oil**. Fossil fuels also release a lot of harmful greenhouse gases into the atmosphere that have detrimental effects on the atmosphere, whereas the usage of He-3 fusion technology will be a great substitute to the fossil fuels as it doesn’t release any harmful byproducts. In addition to the non- polluting properties of He-3 fusion on Earth, the mining of He-3 from the Moon will not contaminate the Moon as the gases that are released during the extraction process (water and oxygen) aren’t harmful, and instead could be used for sustaining a lunar colony as outlined in the technical section. 74 The United States leads the research in He-3. In 2004, President Bush released his new vision of space exploration. He wants to complete the International Space Station by the year 2010. The completion of this project will greatly increase the working research on the lunar mining of He-3 as the astronauts can experiment on different techniques to extract He-3 from the Moon’s regolith. The International Space stations could be used a trade center for the distribution of He-3 for worldwide distribution. Another goal of the current White House administration is that NASA returns to the Moon by 2015 and to have a permanent living settlement for astronauts by 2020. President Bush has allocated 12 million dollars to the Moon Development Initiative. This initiative would help tremendously in the progress in the He-3 research if a permanent colony is established on the Moon (Hurtack, 2004). **The developed world would no longer** have to **depend on the Middle East, where** the **most of the world’s fossil fuel reserves are located**, for its energy supply. American **scientists have** already **declared that the Moon could be the Persian Gulf of the** present **century**. Two liters of He-3 would do the work of more than 1,000 tons of coal (Chowdhuri, 2004).

Oil dependence kills US economic heg. **Reynolds 10** writes[[6]](#footnote-6)

**Oil dependence is** slowly **eating away at** the true source of **American power** (our economy) as each year the U.S. exports more and more of its wealth in exchange for oil. U.S. trade deficits have created a situation that forces reliance on overseas capital to support the economy. Much of that capital comes from the petroleum exporting countries that, in turn, get it from oil consumption by American businesses and consumers. Today the American economy is based less on producing either goods or services and more on consumption. This drives what is known as the “petrodollar” system. It begins with the **purchase of oil** by the U.S. consumer, which **sends massive** dollar-denominated **cash flows to oil exporting countries**. In addition, U.S. consumers buy imported goods resulting in flows of dollars to those countries. In turn, the manufacturing nations must purchase oil, which they accomplish with the dollars they obtained from selling products in the U.S. market. At this point, the oil exporters are awash in dollars, which they must either spend or invest.  The consequence is that, to a large extent, governments **in the Middle East** are funded by American consumers**.** The same money you use to fill your gas tank is ultimately funding things like terrorist groups and the Iranian nuclear program, but, perhaps more importantly, it is being used to buy assets in the United States. At the end of 2008, foreigners owned $3.5 trillion more in assets in the U.S. than Americans owned abroad, and the bulk of that difference can be explained by the oil trade deficit. The petroleum trade deficit is a wealth transfer. In 2008 alone, Americans purchased $453 billion of foreign oil (which accounted for more than 65 percent of the total trade deficit). The oil we purchase quite literally goes up in smoke. When all is settled, **Americans have swapped** our **equity for short-term consumption while** the **oil exporters have swapped** their **oil for long-term financial assets.** I don’t think there is any question as to who is getting the better end of the deal. It’s leading to the decline of the dollar. Although, in previous decades, the Federal Reserve has viewed energy prices as a component of inflation and reacted to increasing oil prices using anti-inflationary measures, the modern Federal Reserve has feared that increasing oil prices are more likely to precipitate a recession. The Fed has responded to price shocks by increasing the money supply in hopes of stimulating aggregate demand. The long-term trend of the dollar is downward, which places upward pressure on oil prices. **The Fed has responded to increasing oil prices by printing more money**. Increasing the money supply makes a given dollar worth less**, which means that more dollars are needed** to buy a given quantity of oil. The falling dollar and the increasing price of oil have elicited policies from the Fed that cause the dollar to fall still further and the price of oil to increase even more, accelerating and intensifying the effects. The increasingly unstable fiscal situation in the U.S. is not only a concern for Americans, it is also alarming to foreign holders of dollar-denominated assets. Oil exporting nations continue to accumulate dollars, but they also recognize that the **lack of fiscal sanity in Washington will** eventually **erode the dollar’s value** and, with it, their investment portfolios. Our fate is in their hands. If they begin selling oil in other currencies or divest their dollar-denominated assets, the dollar will go into free-fall, and the fallout in the U.S. economy could be far-reaching. It is vital to U.S. economic security to ensure that a breakdown in the petrodollar system, which may well be inevitable, does not precipitate an absolute economic collapse. It helped cause the housing crisis. The housing bubble, which burst in 2008, has been the most damaging event for the U.S. economy in recent memory, but few realize the central role oil played in creating it. The first culprit was the petrodollar system. American consumers paid for billions of barrels of oil. That money landed with the oil exporters—oil sheiks and petro-state autocrats—who then bought financial assets in the U.S. market. In fact, between 2003 and 2008, the U.S. purchased $1.65 trillion of foreign oil, but over 45 percent of the money can be traced directly to funds used by foreign oil suppliers to purchase assets in the United States, and about half of that amount went straight into the bonds of Fannie Mae, Freddie Mac, or the U.S. government. Another factor was increased liquidity. As previously mentioned, in recent years the Fed has printed more and more money and made it available to banks, which then made loans in the market. Of course, the Fed also controls banks’ reserve requirements and short-term interest rates, which they can manipulate to create more liquidity. And all that liquidity must go somewhere. Among other places, it ended up in questionable mortgage investments simply compounding the effects of petrodollar recycling.  The flow of petrodollars into government securities artificially depressed interest rates. Lower interest rates encouraged greater lending and borrowing. As a result, homeowners found a favorable environment and plenty of capital to encourage over-borrowing. **Without foreign oil dependence,** the system that made possible the excessive borrowing that led to the crisis would not have existed. Individuals and even domestic corporations make much different investment decisions than do foreign governments. Without foreign oil, **Americans would still pay for energy, but** instead of being concentrated in financial assets like Treasury bonds, **the price paid at the pump would be used to** buy things like capital equipment and to **create jobs and pay workers**. Cash would ultimately end up in the hands of individuals **in this country, not foreign governments.** Equity that belongs to you is much better than debt you owe to someone else.

Empirics prove economic hegemony solves global conflict. **Hubbard 10** writes[[7]](#footnote-7)

Research into the theoretical underpinnings of this topic revealed that there are two main subfields within the literature on hegemonic stability. One line of study, an avenue pursued by prominent theorists such as Kindleberger, Keohane, and Ikenberry focuses primarily on questions of related to the economic system. The other avenue, pursued by theorists such as Gilpin, looks at the role of hegemonic governance in reducing violent conflict. In my research, I focus on this aspect of hegemonic stability – its implications for military conflict in the international system. To research this question, I undertook a broad quantitative study that examined data from both the American and British hegemonic epochs, focusing on the years of 1815-1939 in the case of British hegemony, and 1945 to 1999 in the case of American hegemony. I hypothesized that hegemonic strength was inversely correlated with levels of armed conflict in the international system. Using the data from the Correlates of War Project, I was able to perform a number of statistical analyses on my hypothesis. To measure hegemonic strength, I used the Composite Index of National Capability, a metric that averages together six different dimensions of relative power as a share of total power in the international system. **I** then **matched this data with data cataloging all conflicts** in the international system **since 1815**. I organized this data into five-year increments, in order to make statistical analysis more feasible. **Regression** analysis of the data **revealed** that there was **a statistically significant negative correlation between** relative **heg**emonic power **and conflict** levels in the international system. However, further statistical tests added complications to the picture of hegemonic governance that was emerging. Regression analysis of military actions engaged in by the hegemon versus total conflict in the system revealed a highly positive correlation for both American and British hegemony. Further **analysis revealed** that in both cases, **military power was a less accurate predictor of** military **conflict than economic power**. There are several possible explanations for these findings. It is likely that economic stability has an effect on international security. In addition, **weaker hegemons are more likely to be challenged militarily** than stronger hegemons. Thus, the hegemon will engage in more conflicts during times of international insecurity, because such times are also when the hegemon is weakest. Perhaps the **most important** implication of this research **is that hegemons may well be more effective in promoting peace through economic power** than through the exercise of military force. II. Research Question In examining hegemonic stability theory, there are several important questions to consider. First of all, an acceptable definition of what constitutes a hegemon must be established. Secondly, a good measure of what constitutes stability in the international system must be determined. Certainly, the frequency and severity of interstate conflict is an important measure of stability in the international system. However, other measures of stability should also be taken into account. Conflict in the international system takes on a wide range of forms. While military conflict is perhaps the most violent and severe dimension, it is only one of many forms that conflict can take. Conflict need not be confined to wars between traditional states. Terrorism, piracy, and guerilla warfare are also types of conflict that are endemic to the international system. Economic conflict, exemplified by trade wars, hostile actions such as sanctions, or outright trade embargos, is also an important form of conflict in the international system. States can also engage in a range of less severe actions that might be deemed political conflict, by recalling an ambassador or withdrawing from international bodies, for example. Clearly, “stability” as it pertains to the international system is a vast and amorphous concept. Because of these complexities, a comprehensive assessment of the theory is beyond the purview of this research. However, completing a more focused analysis is a realistic endeavor. Focusing on international armed conflicts in two select periods will serve to increase the feasibility the research. I will focus on the period of British hegemony lasting from the end of the Napoleonic wars to 1939 and the period of American hegemony beginning after the Second World War and continuing until 1999, the last year for which reliable data is available. The proposed hypothesis is that in these periods, the **heg**emon **acted as a stabilizing force** by reducing the frequency and severity of international armed conflict. The dependent variable in this case is the frequency and severity of conflict. The primary independent variable is the power level of the hegemon. This hypothesis is probabilistic since it posits that the hegemon tended to reduce conflict, not that it did so in every single possible instance. One way to test this hypothesis would be through a case-study method that examined the role of Britain and the United States in several different conflicts. This method would have the advantage of approaching the problem from a very feasible, limited perspective. While it would not reveal much about hegemony on a broader theoretical level, it would help provide practical grounding for what is a highly theoretical area of stuffy in international relations. Another method would be to do a broader quantitative comparison of international conflict by finding and comparing data on conflict and hegemonic strength for the entire time covered by British and American hegemony. The hypothesis is falsifiable, because it could be shown that the hegemon did not act as a stabilizing force during the years of study. **It** also **avoids** some of **the pitfalls** associated **with the case study method, such as selection bias and** the inherently **subjective** nature of **qualitative analysis.**

## Oil Dependence Impact (Terrorism, :45)

Jade Rabbit will spark a new space race for helium-3.

**Reynolds 13** writes[[8]](#footnote-8)

On Saturday, a Chinese lunar probe made the first soft landing anyone's made on the moon since 1976. The Chang'e-3 probe means that China is one of only three countries -- joining the United States and the old Soviet Union -- to accomplish such a feat. The probe includes an unmanned rover named **Yutu** that **will** spend several months exploring "geological structure and surface substances and **look**ing **for** natural **resources**.'' But will China try to claim the ground it explores? Possibly. Though the landing was a big deal in China, most of the rest of the world responded with a yawn. Moon landing? Been there, done that. But October Sky author Homer Hickam was more excited. He wondered on Twitter if China might want to make a territorial claim on the moon, noting that the area the lander is exploring may contain an abundance of **Helium-3**, a potentially valuable fusion energy fuel that **is found only on the moon**. According to former astronaut/geologist Harrison Schmitt, **China "has made no secret" of** its **interest in Helium-3**. Schmitt observes, "I would assume that **this mission is** both **a geopolitical statement** and a test of some hardware and software related to mining and processing of the lunar regolith." Followed by a mining claim, perhaps. Is that possible? Well, **China seems** pretty **big on making territorial claims lately. And**, really, **there's not a lot to stop them**. The 1967 Outer Space Treaty provides that "outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means." But that's not much of a barrier. First, the treaty only prohibits "national appropriation." If a Chinese company, instead of the Chinese government, were to stake a claim, it wouldn't apply. And, at any rate, China -- which didn't even join the treaty until 1983 -- can, like any other nation, withdraw at any time. All that's required under the treaty is to give a year's notice. So if the the Yutu rover finds something valuable, Chinese mining efforts, and possibly even territorial claims, might very well follow. And that would be a good thing. What's so good about it? Well, two things. First, **there are American companies looking at doing business on the moon**, too, **and a Chinese venture would probably boost their prospects**. More significantly, a Chinese claim might spur a new space race, which would speed development of the moon. **The** 1960s **space race between the U**nited **S**tates **and** the old **Soviet Union saw rapid progress in space tech**nology. We went from being unable to put people in Earth orbit, to landing men on the moon and returning them safely to earth, repeatedly, in less than a decade. **It happened so fast because each nation was afraid the other would get there first**. The 1967 Outer Space Treaty, in fact, was basically a deal to throw the contest out. Each nation was more afraid of being beaten than it was, really, anxious to win itself. As soon as the ink on the treaty was dry, space efforts began to dry up, too. That's one reason why no one has had a soft landing on the moon in almost 40 years -- and why it's been 41 years almost to the day since the last man, astronaut Eugene Cernan, stood on the moon. **If**, like me, **you'd like to see** a gold rush on the moon -- or, at least, **a Helium-3 rush** -- then **a Chinese claim might** be just the thing to **get it started**. Personally, I'm hoping Hickam's prediction is right.

Helium-3 development solves Middle East oil dependence.

**D’Souza et al 6** write[[9]](#footnote-9)

Energy is the most important driving force for powering industrial nations. In fact, a measure of a country’s industrialization is its annual energy consumption. Fossil fuels like coal, petroleum and natural gas are the chief means by which most nations get their energy. Because of the world’s increasing standards of living and its increased dependence on oil, **fossil fuel** amounts **might not last longer than a few decades**. Also **with the world’s population expanding to almost 12 billion by** the year **2050,** our **oil demand will** also **increase drastically**. Oil has become a key issue in the political and economic affairs of many nations especially after the United States second war with Iraq. **In** such **cases of crisis,** the **development of He-3 will alleviate** the **dependency on** crude **oil**. Fossil fuels also release a lot of harmful greenhouse gases into the atmosphere that have detrimental effects on the atmosphere, whereas the usage of He-3 fusion technology will be a great substitute to the fossil fuels as it doesn’t release any harmful byproducts. In addition to the non- polluting properties of He-3 fusion on Earth, the mining of He-3 from the Moon will not contaminate the Moon as the gases that are released during the extraction process (water and oxygen) aren’t harmful, and instead could be used for sustaining a lunar colony as outlined in the technical section. 74 The United States leads the research in He-3. In 2004, President Bush released his new vision of space exploration. He wants to complete the International Space Station by the year 2010. The completion of this project will greatly increase the working research on the lunar mining of He-3 as the astronauts can experiment on different techniques to extract He-3 from the Moon’s regolith. The International Space stations could be used a trade center for the distribution of He-3 for worldwide distribution. Another goal of the current White House administration is that NASA returns to the Moon by 2015 and to have a permanent living settlement for astronauts by 2020. President Bush has allocated 12 million dollars to the Moon Development Initiative. This initiative would help tremendously in the progress in the He-3 research if a permanent colony is established on the Moon (Hurtack, 2004). **The developed world would no longer** have to **depend on the Middle East, where** the **most of the world’s fossil fuel reserves are located**, for its energy supply. American **scientists have** already **declared that the Moon could be the Persian Gulf of the** present **century**. Two liters of He-3 would do the work of more than 1,000 tons of coal (Chowdhuri, 2004).

Oil dependence causes terrorism.

**Reynolds 10** writes[[10]](#footnote-10)

Terrorism is a reality of the modern world.  Terrorism is not the product of Islam; rather it is the manifestation of a particular political agenda. All **terror**ist groups in the Middle East share a hatred for Israel, but seldom have major **attacks** impacting the United States had much to do with our support of Israel. Instead, most of these groups’ grievances **relate to** the effects of **oil policies.**  Take, for example, the story of the nation’s most wanted terrorist—Osama bin Laden. As an insurgent against the Soviet occupation of Afghanistan, Bin Laden was a de facto U.S. ally, and few dispute the claim that he received support from the CIA. Things changed in 1990 when Saddam Hussein invaded Kuwait, and Saudi Arabia came under threat. The Saudi royal family turned to the U.S. for assistance. Bin Laden offered to defend the country himself with his mujahedeen fighters but was turned down. **After Saddam was expelled from Kuwait, the U.S. stationed** as many as 20,000 **troops in Saudi Arabia**, Kuwait, and other nations surrounding Iraq to contain any future threat.  The U.S. response and the ability to assemble a broad international coalition had nothing to do with sympathy for Kuwait or feigned outrage at Saddam Hussein’s audacity to invade a sovereign neighbor. **The U.S. and the rest of the world were** understandably **frightened of the prospect of Saddam controlling over 38 percent of the world’s oil** and all of the world’s swing capacity. If he were allowed to control Iraq, Kuwait, and Saudi Arabia, Saddam would have had nearly absolute control over world oil prices. The **presence of troops** began to **bre**e**d resentment**, especially in Saudi Arabia, where Islamic extremists were particularly insulted by the American presence so **close to Islam’s holiest sites.** It was **the decision to keep U.S. forces in Saudi Arabia** that many believe **was the critical catalyst** that would lead **to** the **September 11** attacks. With U.S. troops set to be in the region seemingly indefinitely, hatred for America and the terrorist attacks that stem from that hatred are not likely to cease.

Terrorism is the most likely existential threat

**Rhodes 9** writes[[11]](#footnote-11)

The response was very different among nuclear and national security experts when Indiana Republican Sen. Richard Lugar surveyed PDF them in 2005.

This group of **85 experts judged that** the **possibility of** a **WMD attack** against a city or other target somewhere in the world **is real and increasing over time**. The median estimate of the risk of a nuclear attack somewhere in the world by 2010 was 10 percent. The risk of an attack by 2015 doubled to 20 percent median. **There was strong**, though not universal, **agreement that** a **nuclear attack is more likely** to be carried out **by a terrorist organization than by a government.** The group was split 45 to 55 percent on whether terrorists were more likely to obtain an intact working nuclear weapon or manufacture one after obtaining weapon-grade nuclear material. "The proliferation of weapons of mass destruction is not just a security problem," Lugar wrote in the report's introduction. "It is the economic dilemma and the moral challenge of the current age. On September 11, 2001, the world witnessed the destructive potential of international terrorism. But the September 11 attacks do not come close to approximating the destruction that would be unleashed by a nuclear weapon. Weapons of mass destruction have made it possible for a small nation, or even a sub-national group, to kill as many innocent people in a day as national armies killed in months of fighting during World War II. "The bottom line is this," Lugar concluded: "For the foreseeable future, the United States and other **nations will face an existential threat** from the intersection of terrorism and weapons of mass destruction." It's paradoxical that a diminished threat of a superpower nuclear exchange should somehow have resulted in a world where the danger of at least a single nuclear explosion in a major city has increased (and that city is as likely, or likelier, to be Moscow as it is to be Washington or New York). We tend to think that a terrorist nuclear attack would lead us to drive for the elimination of nuclear weapons. I think the opposite case is at least equally likely: **A terrorist nuclear attack would almost certainly be followed by a retaliatory nuclear strike** on whatever country we believed to be sheltering the perpetrators. That response would surely **initiat[ing]**e **a new round of nuclear armament** and rearmament in the name of deterrence, however illogical. Think of how much 9/11 frightened us; think of how desperate our leaders were to prevent any further such attacks; think of the fact that we invaded and occupied a country, Iraq, that had nothing to do with those attacks in the name of sending a message.

# Frontlines/Misc

## AT No US Involvement

The US will get involved to make up for its depleting helium reserves.

**Ouellette 11** writes[[12]](#footnote-12)

Helium wasn’t technically “discovered” on Earth until about 1895, despite being abundant in the universe. **Almost all of the global supply of helium is located** with**in** 250 miles of **Amarillo, Texas**; it’s distilled from accumulated natural gas and extracted during the refining process. Since the 1920s, **the US has considered its helium stockpile** as **an important strategic natural resource**, amassing some 32 billion cubic feet in an underground bunker in Texas, but for several years now, it’s been selling off that stockpile bit by bit to interested industrial buyers. Helium is used for arc welding and leak detection, mostly, although NASA uses it to pressurize space shuttle fuel tanks. Liquid helium cools infrared detectors, nuclear reactors, and the superconducting magnets used in MRI machines, too. **The fear is** that, at current consumption rates, **that underground bunker will be empty within 20 years, leaving the earth almost helium-free** by the end of the 21st century. **This could be bad for US industry**. Fusion Power? It also bodes ill for the prospect of fusion using helium-3, a rare helium isotope that is missing a neutron. Physicists have yet to achieve pure helium-3 fusion, but if they did, we’d have a clean, virtually infinite power source. Or so the theory goes. And that’s where the moon comes in. The moon’s lunar soil is chock-full of helium reserves, thanks to the solar wind. In fact, every star emits helium constantly, suggesting that one day, spaceships will carry on a brisk import and export trade to harvest this critical element — assuming we can figure out how to make such a process economically viable. But helium-3 isn’t the only resource the moon might have to offer. It could also be a source for rare earth elements, such as europium and tantalum, which are in high demand on Earth for electronics and green energy applications (solar panels, hybrid cars), as well as being used in the space and defense industries. China is the largest exporter of rare earth elements, but there are growing concerns over supply vulnerability as China drastically reduces its rare earth exports. Scientists know that there are pockets or rare earth deposits on the moon, but as yet they don’t have detailed maps of those areas. Potassium, phosphorus and thorium are other elements that lunar rocks have to offer a potential mining venture. Lunar Prospecting? And there’s more! In 2009, NASA bombed the moon — part of its Lunar CRater Observation and Sensing Satellite (LCROSS) mission — and observed grains of water ice in the remnants of the resulting plume, as well as light metals such as sodium and mercury, and volatile compounds like methane, ammonia, carbon dioxide, carbon monoxide and hydrogen. This implies that the moon is chemically active — via a process called “cold grain chemistry” — and also has a water cycle. Where you have water ice, you have a potential mother lode for lunar prospecting of hydrogen. Of course, we’re talking about **huge capital expenditures** just **to set up** a **mining** base camp **on the moon**, and the economies of scale might not be there. If the benefits don’t outweigh the costs, we might never see bona fide lunar prospecting. But **i**t’**s a possibility that the US** — not to mention China — **is taking very seriously.**

## Useful Middle East Card

**D’Souza et al 6** write[[13]](#footnote-13)

**Another palpable effect of He-3** on Earth **would be** the **political change** that the end of the oil monopoly over energy production will bring about. Thepresent tension between Middle Eastern, oil rich nations and western nations might subside once the **exclusive power that Middle Eastern countries exert in determining oil** production quotas and **prices is no longer as critical for global energy production**. It is the view of many political analysts today that **the Intifadas and** the **fundamentalist movement** that we are experiencing today **is in part fueled by** the **economic boom that oil producing nations are undergoing as a result of high oil prices** (Rifkin, 2002). Whether this view holds or not, the situation in the Middle East is prone to change dramatically at the end of the oil age. For once, **economies that depend on oil revenue will be forced to diversify** their **income sources**. Such change will bring about revolutionary movements that may very well change the structure of society. Will this result in an even more unequal distribution of power and resources between developing nations and developed nations? Again the answer to this question resides largely upon which nations will have cheap access to energy sources and which are dependent upon others for their energy income. It is here 96 that adherence to the UN treaty prescribing that all space resources should be used for the advancement of mankind is critical. A possible scenario that might follow from this principle would be that a few nations would directly harvest, transport and exploit He-3. For the mining privileges on the Moon, which is noted as belonging to all of mankind, these nations would be obliged to pay either royalties to all nations, or distribute electricity to other nations as a form of payment. This is a positive yet not ideal scenario. It is positive in that under-developed nations would obtain electricity directly and from it could develop industry. Nonetheless, industrialization and economic growth necessitates much more than electricity. It needs international investment and commitment, which might or might not be linked to He-3 or other alternative energy sources.

## Yudkowsky

Reducing the probability of existential disaster through space colonization is more valuable than preventing specific impact scenarios. Overly detailed impact predictions are improbable and create false perceptions of security.

**Yudkowsky 6** writes[[14]](#footnote-14)

According to probability theory, **adding** additional **detail** onto a story **must render the story less probable**. It is less probable that Linda is a feminist bank teller than that she is a bank teller, since all feminist bank tellers are necessarily bank tellers. **Yet** human **psychology** seems to **follow the rule that adding** an additional **detail can make the story more plausible.** People might pay more for international diplomacy intended to prevent nanotechnological warfare by China, than for an engineering project to defend against nanotechnological attack from any source. The second threat scenario is less vivid and alarming, but the defense is more useful because it is more vague. **More valuable** still **would be strategies which make humanity harder to extinguish without being specific to** nanotechnologic **threats - such as colonizing space**, or see Yudkowsky (this volume) on AI. Security expert Bruce Schneier observed (both before and after the 2005 hurricane in New Orleans) that the U.S. government was guarding specific domestic targets against "movie-plot scenarios" of terrorism, at the cost of taking away resources from emergency-response capabilities that could respond to any disaster. (Schneier 2005.) Overly detailed reassurances can also create false perceptions of safety: "X is not an existential risk and you don't need to worry about it, because A, B, C, D, and E"; where the failure of any one of propositions A, B, C, D, or E potentially extinguishes the human species. "We don't need to worry about nanotechnologic war, because a UN commission will initially develop the technology and prevent its proliferation until such time as an active shield is developed, capable of defending against all accidental and malicious outbreaks that contemporary nanotechnology is capable of producing, and this condition will persist indefinitely." **Vivid**, specific **scenarios** can **inflate our probability estimates** of security, **as well as misdirecting** defensive **investments into** needlessly narrow or **implausibly detailed** risk **scenarios.**

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11. RICHARD RHODES He has been a visiting scholar at Harvard and MIT, and currently he is an affiliate of the Center for International Security and Cooperation at Stanford University. Rhodes is the author of The Making of the Atomic Bomb (1986), which won the Pulitzer Prize in Nonfiction, National Book Award, and National Book Critics Circle Award. It was the first of four volumes he has written on the history of the nuclear age. Dark Sun: The Making of the Hydrogen Bomb (1995), Arsenals of Folly: The Making of the Nuclear Arms Race (2007), and The Twilight of the Bombs (forthcoming in autumn 2010) are the others. Reducing the nuclear threat: The argument for public safety 14 DECEMBER 2009 [↑](#footnote-ref-11)
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