**TRANSLATION:**

**Juriste de l’espace, le vrai métier d’avenir ?**

"Oublier la Terre ? - la conquête spatiale 2.0", de Jacques Arnould*. Le Nouvel Obs – 29/11/2018*

**La lecture de ce petit livre s’est imposée** après l’arrivée sur Mars de la sonde InSight. Parce qu’en vrai, on n’y comprend plus grand chose entre le débarquement d'acteurs privés (comme le SpaceX d’Elon Musk mais il est loin d'être le seul), les annonces tonitruantes sur l’envoi prochain d’humains sur Mars (Elon Musk toujours), le ronron habituel de la station MIR, les nouvelles découvertes scientifiques dont on a du mal à prendre la mesure… Où en est-on ?

Jacques Arnould (…) nous explique. Depuis le début des années 2000, le secteur spatial est en révolution. La baisse des coûts provoqués par l’arrivée des acteurs privés a permis à tout le monde de se remettre à rêver. Et si on retournait sur la Lune ? Et si on allait sur Mars ? Et si on envoyait des robots forer les astéroïdes ? Et si on préparait l’avenir de l’humanité dans l’espace ?

On se croirait revenir aux heures triomphantes de la conquête spatiale, mais sans la rivalité USA-URSS (…). L’auteur décrit finement, et avec distance, ce qu’il appelle le « NewSpace», un champ qui est tellement empli de fantasmes qu’il est parfois difficile de faire le tri entre ce qui est vraiment possible et ce qui n’est que du décalque de la SF. Mais surtout, Jacques Arnould a l’art de faire émerger des nouvelles questions éthiques, ce qui est beaucoup plus drôle que les questions techniques. (…) Parce que oui, l’espace, ça pose plein de questions éthiques et juridiques. A qui appartient-il ? Est-ce un bien commun ou appropriable ? Qu’a-t-on le droit d’y faire et de ne pas faire ? Et donc qu'est-ce qui se passe si une pierre perdue par un navire spatial heurte, une heure ou deux mille ans après, un autre navire spatial ?

1. **The ‘Trumpian narrative’: towards a new vision of space exploration?**

**DOC5 (TXT): Would a Space Force mean the end of NASA?**

October 18, 2018 by Wendy Whitman Cobb – The Conversation – PHYS ORG

Space, that final frontier, is something that catches the attention of a country naturally inclined to believe in ideas like “**Manifest Destiny**” (see CULTURAL NOTES) and **American exceptionalism** (see CULTURE KEYS). But how well does a Space Force fit that bill? And would a Space Force reignite a military space race and fuel diplomatic tensions with China and Russia? […]

What is a Space Force, and what would it do anyway?

While at a rally in March this year, President Donald Trump first mentioned the idea of a Space Force. Since then, the president has both tweeted about the idea and directed the Pentagon to develop a plan to create an independent sixth branch of the military. […]

Beyond tweets and mentions, the White House has not, in my opinion, made a compelling case for why such a force is needed. The Pentagon report, which supposedly lays its foundation, states that “potential adversaries are now actively developing ways to deny our use of space in a crisis. It is imperative that the United States adapts its policies, doctrine and capabilities to protect our interests.” […]

Consequences of a Space Force for NASA and militarization of space

Should the Trump administration succeed in establishing a Space Force or something like it, the move may have serious consequences for NASA. Depending on its mission, the Space Force is likely to require launch capabilities for satellites and perhaps human missions. Although a Space Force may be able to purchase these services from companies like SpaceX, if they choose to develop an in-house launch system, they may duplicate already existing NASA efforts. Doing so would also likely cause a brain drain at NASA as in-house engineers and experts migrated to the Space Force with promises of new missions and new funding.

There is also a question of whether the Space Force may simply take over current NASA missions. […] NASA’s recent failures in the development of the Space Launch System, or SLS, and the James Webb Space Telescope only further reinforce the image of a NASA spread too thin to accomplish major space endeavors.

Finally, NASA’s budget is already quite low considering its mission: US$19.7 billion in 2017 with $19 billion requested for 2018. This represents less than 0.5 percent of the overall federal budget\*. A Space Force could feasibly take away funding from NASA, especially for the development of human spaceflight capabilities thus cannibalizing NASA’s already low budget.

In terms of geopolitics, establishing a Space Force could create a point of no return in of militarization of space. From Eisenhower onwards, U.S. policymakers have avoided the appearance of overt military influence in space. Both the United States and the Soviet Union joined the 1967 Outer Space Treaty, which stipulated, among other things, the peaceful use of outer space and a ban on nuclear weapons. Following the Space Force announcement, Russian officials warned about potential violations of the treaty and that Russia might choose to withdraw from the treaty if the U.S. did.

Joan Johnson-Freese, a space policy expert, warns in her recent book that the pace of American militarization of space has been increasing, perhaps to the point of no return. Her warning is that policymakers think about further actions before stepping into an arms race for which no one is prepared. While President Trump has certainly shaken up America’s relations with other countries, such a drastic change in American posture could have significant and irreversible effects, creating a second space race. While it could have benefits for American society much as the original space race did, this time, I believe the dangers are likely to be far higher.

*\* the budget represented 4% of the overall federal budget at the time of the Apollo project in the 60s*

**DOC6 (TXT):** **‘If anyone can Maga, it is Nasa’: how First Man’s flag ‘snub’ made space political again**

Steve Rose – 6 Sep 2018 – THE GUARDIAN

A giant leap for mankind or purely an American achievement? Nobody much cared at the time, but half a century later the moon landings have unexpectedly become a political litmus test. Blame the Neil Armstrong biopic *First Man*, directed by Damien Chazelle and starring Ryan Gosling – in particular, the moment when (spoiler alert), after a lifetime’s training and tragedy, Armstrong finally sets foot on the moon. We see him descending the lunar lander, we see the astronaut roaming the lunar surface, we see him turn to look back at Earth, but what we don’t see is the precise moment when Armstrong planted the US flag. Many have decided, even without having seen the movie, that this is one small step too far.

“This is total lunacy,” tweeted the Republican senator Marco Rubio. “The American people paid for that mission, on rockets built by Americans, with American technology & carrying American astronauts. It wasn’t a UN mission.” The actor James Woods weighed in: “Omitting the seminal moment in the midst of mankind’s greatest achievement seems a purposeful denigration of the 400,000 Americans who accomplished it.” The conservative columnist Bill Kristol called it a “foolish and pernicious falsification of history”. Even Buzz Aldrin, Armstrong’s Apollo 11 crewmate, tweeted two pictures of himself standing on the moon next to the stars and stripes, annotated with hashtags including #proudtobeanAmerican, #freedom, #honor and #onenation.

Inevitably, the news was relayed to Donald Trump, whose response raised the affair to full-on culture-war level. “It’s almost like they’re embarrassed at the achievement coming from America; I think it’s a terrible thing,” Trump told the Daily Caller, a conservative news site. “When you think of Neil Armstrong and when you think of the landing on the moon, you think about the American flag. For that reason, I wouldn’t even want to watch the movie.” Wait till he finds out Ryan Gosling is Canadian.

Chazelle’s omission of the flag-planting was deliberate, but not politically motivated, the director said in response. […] Chazelle was supported by Armstrong’s sons and James R Hansen, author of the nonfiction book First Man, from which the movie was adapted. In a joint statement, they said: “We do not feel this movie is anti-American in the slightest. Quite the opposite.”

In the same week that Nike’s sponsorship of NFL knee-taker-in-chief Colin Kaepernick compelled some Americans to set fire to their trainers, Chazelle’s movie is another illustration of how polarized US life has become, especially when it comes to the flag. Depending on which end of the political scale you are, *First Man* is either being willfully interpreted as political when its stated agenda is the opposite, or it is another case of liberal Hollywood trolling conservatives, rewriting history and generally making America less great.[…]

Viewed through the Trump prism, the 1969 moon landings are surely the ultimate “make America great again” touchstone: a moment of incontestable US supremacy that occurred within many of his voters’ lifetimes. The fact that the moon landings still represent the pinnacle of human, and American, accomplishment in space nearly 50 years later fits into the Trumpian narrative. He recognizes that if anyone can Maga, it is Nasa.

What would Armstrong have said about all this? Probably nothing. His brand of heroism is invariably appended with the word “reluctant”. Armstrong was unimpeachably a patriot who loved and served his country, but he was also tight-lipped. He barely made any public statements about his experiences on the moon – or anything else. He did, however, make one concise, very famous proclamation about it being a giant leap for mankind. Perhaps, in that transcendent moment, he wanted us to be more than a planet of warring tribes, nation states or political factions. And we are, right?

VOCABULARY

(N) : NOUN (V): VERB (ADJ): ADJECTIVE (ADV) : ADVERB explo**ra**tion => **accent tonique primaire**

*priv*ati**za**tion => accent tonique *secondaire*

**SPACE VENTURE L’AVENTURE SPATIALE**

An **as**tronaut  [æ]: *un astronaute*

A **co**smonaut [ɒ] : *un cosmonaute*

A **space**man/woman : *un(e) spationaute*

The crew /ˈkruː/: *l’équipage*

A space suit /su:t/ : *une combinaison spatiale*

A space base : *une base spatiale*

A **spa**ceship/**spa**cecraft : *un vaisseau spatial*

A space shuttle : *une navette spatiale*

A space flight: *un vol spatial*

A **ro**cket /ˈ**rɒ**kɪt/: *une fusée*

To launch /ˈlɔːntʃ/: *lancer*

A launch ve**hi**cle (US) / **ve**hicle (UK): *une fusée de lancement*

A **laun**ching site : *une base de lancement*

A **laun**chpad : *une aire de lancement*

To fly a mission : *faire partie d’une mission*

A **mis**sion con**tro**ller : *un contrôleur de mission*

The **count**down [aʊ] (N): *le compte à rebours*

Ø blast-off (N): *la mise à feu*

Ø lift-off (N): *le décollage*

A test flight : *un vol d’essai*

A **fly**by : *un survol*

A **man**ned[[1]](#footnote-1)/piloted spacecraft: *un vaisseau spatial habité*

An un**man**ned/unpiloted spacecraft: *un vaisseau spatial inhabité*

To **or**bit [ɔː]: *tourner en orbite*

To orbit a **sa**tellite : *placer un satellite en orbite*

To go into orbit: *se mettre en orbite*

To **cir**cle the earth : *tourner autour de la terre*

Ø **gra**vity [æ] (N): *la pesanteur*

To **gra**vitate [æ]: *graviter*

Gravi**ta**tion [eɪ]: (N) *la gravitation*

Gravi**tat**ional pull : *la force d’attraction*

Weight /weɪt/ (N): *le poids*

**Wei**ghtless (ADJ): *en état d’apesanteur*

**Wei**ghtlessness (N): *l’apesanteur*

Ø **space**walk  (N): *une sortie dans l’espace*

An **air**lock : *un sas*

To dock with sth : *s’arrimer à qqch*

Docking (N): *l’arrimage*

The Milky Way: *la voie lactée*

A feat [iː]: *un exploit, un tour de force*

An en**dea**vour [e]: *un effort, une initiative, une entreprise, une société*

Ø en**dea**vour : *un effort considérable*

Ø **Moon**landing [u:] (N): *l’alunissage*

To land on the moon: *alunir*

A trip to the moon : *un voyage dans la lune*

The first man on the moon: *le premier homme sur la lune*

“That's one small step for [a] man, one giant leap for mankind” *"C'est un petit pas pour l'homme, mais un bond de géant pour l'humanité."[[2]](#footnote-2)*

**Stran**ded [æ] (ADJ): *coincé / abandonné*

The **spac**e age: *l’ère spatiale*

A space probe: *une sonde spatiale*

A space platform / station : *une station spatiale*

The **In**ter**na**tional Space **Sta**tion (ISS : *la station spatiale internationale)*

A **sky**lab : *un laboratoire spatial*

A space **co**lony [ɒ]: *une colonie spatiale*

A *co*mmuni**ca**tions satellite : *un satellite de télécommunications*

A spy **sa**tellite: *un satellite espion*

A sample [ɑː]: *un échantillon*

To sample [ɑː] the soil : *prélever des échantillons du sol*

**(THE) SPACE RACE LA COURSE A L’ESPACE**

The Cold [əʊ] War [ɔː]: *la Guerre Froide*

The Soviet [əʊ] Union [ju:-]: *l’Union Soviétique*

A superpower: *une superpuissance*

Ø **Co**mmunism ≠ Ø **Ca**pitalism

**Ø** World War II = **the** Second World War

A **ri**valry [aɪ]: *une rivalité*

Be on the brink of: *être sur le point de*

Be **wa**ry [eə] of (ADJ): *être sur ses gardes / méfiant*

Be **bo**gged [ɒ] down (ADJ): *s’enliser*

To fuel /ˈfjuːəl/ fears: *alimenter les craintes*

Ø propa**gan**da /ˌprɒpəˈ**ɡæ**ndə/ : *la propagande*

The Stra**te**gic **De**fense I**ni**tiative (Star Wars program) (1984-1993) : *l’initiative de défense stratégique*

Ø Space Force : *la force spatiale*

The **fi**nal fron**ti**er (a nod to Star Trek) : *l’ultime frontière (Star Trek :*  ‘*Espace*... *frontière de l’infini*’ *en vf lors de la* *diffusion de la série des années 66-69)*

dra**ma**tic a**chie**vements [iː]: *des exploits spectaculaires*

Ø funding /ˈfʌndɪŋ/ (N): *le financement*

**SPACE PRIVATIZATION LA PRIVATISATION DE L’ESPACE**

A **pri**vate **com**pany [ʌ] : *une entreprise privée (une société)*

A CEO = a Chief Executive Officer / an MD = a Managing Director: *le PDG d’une entreprise*

An entrepre**neur**  /ˌɒntrəprəˈ**nɜː**r/: *un entrepreneur*

A **sci**entist : *un scientifique*

Scien**ti**fic (ADJ): *scientifique*

An engin**eer** /ˌɛndʒ*ɪ*ˈ**nɪə**r/: *un ingénieur*

Ø compe**ti**tion / a **con**test (N): *la compétition / la concurrence*

To **cha**llenge [æ]: *mettre au défi*

A space **a**gency [eɪ]: *une agence spatiale (gouvernementale)*

A **par**tnership [ɑː]: *un partenariat*

Ø space **po**licy [ɒ] (N): *la régulation de l’espace*

To **ad**vertize [æ]: *faire la publicité de*

A cost / costs [ɒ] : *les coûts*

To cost: *coûter*

Ø **sa**fety [eɪ] (N): *la sécurité*

Ø reusa**bi**lity (N): *le concept de réutilisation*

To take a light touch to something / V-ing: *faire preuve de légèreté*

To up the **an**te /ænti/: *faire monter les enchères*

To be open to specu**la**tion: *laisse le champs libre à toutes sortes d’hypothèses*

to **re**gulate[e] : *réglementer*

To check / **mo**nitor : *contrôler*

To com**ply** with/ to a**bi**de by : *respecter*

Ø regu**la**tion : *la réglementation*

Ø **as**teroid /ˈ**æs**tərɔɪd/ mining : *l’exploitation minière des astéroïdes*

**Mi**nd-boggling (ADJ) : *ahurissant / faramineux*

**SPACE AND THE ENVIRONMENTAL ISSUE L’ESPACE ET LA QUESTION ENVIRONMENTALE**

**Car**bon e**mi**ssions: *les émissions de CO2*

Exh**aust** fumes : *les gaz d’échappement*

**Cli**mate-**al**tering e**mi**ssions : *des émissions responsables des changements climatiques*

Ø **cli**mate change : *le changement climatique*

Ø **glo**bal [əʊ] **war**ming [ɔː]: *le réchauffement planétaire*

The en*vi*ron**men**tal cost : *l’impact sur l’environnement*

The **o**zone [əʊ] **lay**er [eɪə] : *la couche d’ozone*

The rise in **tem**perature : *l’augmentation des températures*

Ø space **de**bris /**de**bri/ : *les débris spatiaux*

To harm [ɑː] / **da**mage [æ]: *nuire à*

Ø **da**mage [æ] (N): *les dégâts*

A threat : *une menace*

To **threa**ten: *menacer*

Ø sustaina**bi**lity: *la durabilité*

To re**use** /rɪ**ju:z**/ *réutiliser*

Re**u**sable (ADJ) : *réutilisable*

To re**new** : *renouveler*

Re**new**able (ADJ) : *renouvelable*

**THÈME GRAMMATICAL :**

1. L’exploration spatiale a constitué un des enjeux les plus cruciaux de la guerre froide.
2. Il est évident que l’envoi du premier homme sur la lune par les Américains a marqué un tournant dans l’histoire de l’humanité.
3. Il est à craindre que le tourisme spatial n’ait un coût environnemental bien plus lourd qu’on ne l’imagine.
4. Les motivations des entreprises spatiales privées restent du domaine de l’hypothèse.
5. A l’époque, les recherches aérospatiales relevaient davantage du prestige et du pouvoir que de l’argent.
6. Plus les milliardaires investissent dans l’exploration spatiale, moins le citoyen lambda se sent concerné.
7. Les gouvernements feraient mieux de concentrer leurs efforts pour sauver la Terre plutôt que de vouloir aller à la conquête d’une autre planète.
8. C’est la première fois que je prends conscience des sommes faramineuses investies dans la conquête de l’espace.
9. S’il avait la possibilité d’acheter un billet pour voir la Terre de là-haut, je suis qu’il le ferait !
10. Ne devrait-on pas réglementer davantage l’industrie spatiale afin d’éviter que des dégâts irréparables ne soient commis ?

**CULTURAL REFERENCES**

**A**ME**RICAN FRONTIER**, in United States history, refers to the **advancing border** that marked **those lands that had been settled by Europeans**. It is characterized by the **westward movement** of European settlers from the **original Atlantic coast** (**17th century**) to the **Far West** (**19th century**), known as American territorial expansion.

The historian **Frederick Jackson Turner** (1861-1932) noted that, “especially in the United States,” the term referred to that “*belt of territory sparsely occupied by Indian traders, hunters, miners, ranchmen, backwoodsmen and adventurers of all sorts*” which formed “*the temporary boundary of an expanding society at the edge of substantially free lands*.” Turner held that the **American character** was decisively **shaped** by **conditions** on the **frontier**, in particular the **abundance of free land**, the settling of which engendered such traits as **self-reliance**, **individualism**, **inventiveness**, **restless energy**, **mobility**, **materialism**, and **optimism**.

**THE DEMOCRATIC NATIONAL CONVENTION** (DNC) is a series of presidential nominating conventions held every four years since 1832 by the United States Democratic Party. The primary goal of the Democratic National Convention is to **nominate** and **confirm** a **candidate** for **president** and **vice president**, **adopt a comprehensive party platform** and **unify the party**. Pledged delegates from all fifty U.S. states and from American dependencies and territories such as Puerto Rico and the Virgin Islands, and superdelegates which are unpledged delegates representing the Democratic establishment, attend the convention and **cast their votes** to **choose the Party’s presidential candidate**. Like the Republican National Convention, the **Democratic National Convention** marks the formal end of the **primary election** period and the **start of the general election season**.

**John Fitzgerald KENNEDY (1917-1963)** was elected **President in 1960**. Handsome and inspiring, in his first speech he said, *“****My fellow Americans, ask not what your country can do for you, but what you can do for your country****”*. Although he was energetic and intelligent, Kennedy soon faced difficulties: **the Bay of Pigs Invasion** (led by Cuban refugees backed by the CIA to overthrow Communist Cuba’s government) turned into a **failed military coup** and the **Cuban Missile Crisis in 1962** brought the US on the brink of a nuclear conflict. He also sent military advisers and troops to **Vietnam**, which led, after his death, to American involvement in the Vietnam War. At home, he **proposed laws to give black Americans equal rights**, but Congress did not pass these laws in his lifetime. In November **1963**, Kennedy travelled to Dallas, Texas, to gather support in the American south. He was shot and **killed** by a sniper while traveling in an open car. The world mourned Kennedy not only for what he did, but for the good he could have done had he lived.

**NASA** /ˈ**næ**sə/: In 1958, the U.S. Congress passed legislation establishing the **National Aeronautics and Space Administration** (NASA), a **civilian** agency responsible for coordinating America’s activities in space. NASA has since sponsored **space expeditions**, both human and mechanical, that have yielded **vital information** about the solar system and universe. It has also launched numerous earth-orbiting satellites that have been instrumental in everything from weather forecasting to navigation to global communications.

NASA was **created** in **response** to the Soviet Union’s October 4, **1957** launch of its first satellite, **Sputnik I**. The Sputnik launch **caught Americans by surprise** and **sparked fears** that the **Soviets** might also be capable of **sending missiles** with **nuclear weapons** from Europe to America. The United States prided itself on being at the forefront of technology, and, embarrassed, immediately began developing a response, signaling the **start of the U.S./Soviet space race**.

NASA **has** **continued** to make **great advances** in space exploration since the first moonwalk, including playing a major part in the construction of the **International Space Station** **(ISS)**. The agency has also **suffered tragic setbacks**, however, such as the disasters that killed the crews of the **Challenger** space shuttle in **1986** and the **Columbia** space shuttle in **2003**. In 2004, President George Bush challenged NASA to return to the moon by 2020 and establish “*an extended human presence*” there that could serve as a launching point for “*human missions to Mars and to worlds beyond*.”

*From History.com*

**SPACE X** is a **private airspace agency** founded in 2002 by South-African-born entrepreneur **Elon Musk** (who also founded the **Tesla** **company** that specializes in **electric vehicles** and **clean energy storage**), and was the **first** private company to **send a spacecraft to the International Space Station** (ISS) in 2012. It has developed a **program** that plans to **land the first humans to Mars by 2024**, in an attempt to **colonize** the planet and make it an **outpost for future human life**. His long-term plan is to colonize the planet with 1 million people. While Musk admists living on Mars will be a “*difficult*” and “*dangerous*” experience, he also says “***there will be some for whom the excitement of exploration and the next frontier exceeds the danger***”. In February 2018, Elon Musk sent a Tesla Roadster into space. While some commentators voiced concern that car contributed to space debris, others saw it as a work of art. Musk explained he wanted to inspire the public about the “possibility of something new happening in space”, as part of a larger vision for spreading humanity to other planets.

**THE GILDED AGE**, is the late 19th century, **from** **the** **1870s to about 1900**. The term for this period came into use in the 1920s and 1930s and was derived from writer Mark Twain's and Charles Dudley Warner's 1873 novel *The Gilded Age: A Tale of Today*, which satirized an era of serious social problems masked by a thin gold gilding.

Its beginning in the years **after the American Civil War overlaps the Reconstruction Era** (which ended in 1877). It was followed in the 1890s by the Progressive Era.

The Gilded Age was an era of **rapid economic growth**, especially **in the North and West**. The **rapid expansion of industrialization** led to **real wage growth**. However, the Gilded Age was also an era of **abject poverty** and **inequality** as millions of **immigrants**—many from **impoverished** regions—poured into the United States, and the high concentration of wealth became more visible and contentious.

Indeed, the **great burst of industrial activity** and **corporate growth** was **presided over** by a collection of **colorful and energetic entrepreneurs** who became known alternatively as ‘captains of industry’ and ‘robber barons’. They **grew rich** through the **monopolies** their created in the steel, petroleum and transportation industries. Among the best known of them were Rockefeller, Carnegie, Vanderbilt and JP Morgan.

**MANIFEST DESTINY** /ˈ**mæ**nɪfestˈ**des**tɪni/:



**Manifest Destiny**, a phrase coined (=invented/devised) in **1845**, expressed the philosophy that **drove 19th-century U.S**. **territorial expansion**. Manifest Destiny held that the United States was **destined**—**by God, its advocates believed—to expand its dominion and spread democracy and capitalism across the entire North American continent**.

President Thomas Jefferson kicked off the country’s westward expansion in **1803** with the **Louisiana Purchase from France**, which nearly doubled the size of the United States.

The U.S. population exploded in the first half of the 19th century, from around 5 million people in 1800 to more than 23 million by 1850. Such rapid growth—as well as two economic depressions in 1819 and 1839—would **drive**

1. ## Gender-Specific Language (e.g., Manned Space Program vs. Human Space Program). In general, all references to the space program should be non-gender-specific (e.g., human, piloted, unpiloted, robotic, as opposed to manned or unmanned). The exception to the rule is when referring to the Manned Spaceflight Center (also known as the Manned Spacecraft Center), the predecessor of Johnson Space Center in Houston, or to any other historical program name or official title that included “manned” (e.g., Associate Administrator for Manned Spaceflight). Source: the NASA style guide for authors.

   [↑](#footnote-ref-1)
2. Armstrong may or may not have pronounced the article ‘a’ (there has been a long debate about this), but what he seems to have meant was that one man can easily make the step, but humanity was achieving a giant leap. [↑](#footnote-ref-2)