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HOW EXPANSIVE CIVILIZATIONS HAVE USED ADVANCED TECHNOLOGIES TO BULLY OTHERS, AND WHY IT MIGHT JUST HAPPEN TO APPLY TO ALIENS AS WELL

***Abstract*:** The article is an analysis of Liu Cixin's literary vision of extraterrestrial first contact and how does it overlap with the history of human intraspecific colonialism. In his sci-fi trilogy he explores his 'Dark Forrest Theory', one of the possible answers to the Fermi Paradox, where a civilisation either remains anonymous or faces the prospect of interstellar colonisation by a technologically superior one, preemptively eliminating a potential threat. Later in the text, I analyse how, much like in extraterrestrial colonial warfare, human colonisation across the ages was also heavily based on the premise of the technological superiority of the coloniser over the colonised, and how these instances have influenced Liu's story.

***Key Words*:** colonialism, first contact, fermi paradox, China, science fiction

Introduction

In his science fiction trilogy, *Remembrance of Earth's Past*, Liu Cixin explores the possibility of humanity's first contact with a hostile extraterrestial intelligence and the latter's attempt at colonising Earth utilising their overwhelming technological advantage. Liu is a preeminent Chinese science fiction author, a nine-time winner of China's most prestigious literary sci-fi "Galaxy Award" and of the 2015 Hugo Award – for *The Three Body Problem* – the first part of his aforementioned trilogy and the first ever work in translation to receive the award.

The phrase "first contact", coined by Murray Leinster and which is also the title of his 1945 novel, came to signify in western popular culture the first encounter between humans and extraterrestrial life. But it can obviously be used to describe any kind of initial contact between any two entities, terrestrial or otherwise. The play on this very semantic ambiguity will be the main premise of this article, as it will attempt to compare humankind, still prior to their extraterrestrial first contact, overwhelmed and outranked by their extraterrestrial arch-enemy's technology, facing the prospect of a near-certain extinction, as portrayed by Liu Cixin, and the historical instances of first contact in

terms of colonial expansion, with emphasis on the role of the invader's technological superiority to that of the invaded.

Colonialism, including its modern form – neocolonialism, is a broad term encompassing any attempt of an international entity – be it a state or a corporation – to extend its political influence over a less developed country with the purpose of subjugation and exploitation of its peoples as labour, its natural resources and its land, often with the aid of military power. In the less direct forms of neocolonialism, this influence can be achieved and exercised without resorting to the engagement of the military, and only by the means of capitalism, globalisation and cultural imperialism. (Chomsky 1979, 42)

Colonialism can be classified in accordance with its typology proposed by professor of anthropology Enrico Dal Lago includes, among others, such variants as: exploitation colonialism – being a policy of conquering and exploiting the country's populace and resources to the benefit of the aggressor; settler colonialism – being a mass migration to the receiving country with the aim of either coexistence with the indigenous inhabitants, or replacing them alltogether, using military action aimed at either routing them or, varying in scale, ethnic clensing; surrogate colonialism – being a settlement project orchestrated or supported by a foreign power aimed at replacing indigenous population of the receiving land; etc. (Dal Lago 2014, 126) Each of these types of colonialism can be also subdivided into more specific types by taking into account more details. In the particular case presented by Liu in his *The Three Body Problem* the Trisolaran invasion of Earth is a settler type of colonialism, with the explicit purpose of completely wiping out the indigenous to earth humankind, to prevent their possible future retaliatory action.

However, there are other, optional forms of possible Trisolaran colonisation mentioned in the book too, all of them being subdivisions of the settler-type colonialism. The ETO – Earth Trisolaran Organisation, introduced in the second volume of the trilogy – comprised of humans aware of the looming invasion and misanthropically supporting it both ideologically and through action, is tripartitioned into fractions, each proposing a different colonial end result: the group called "Adventists" controls communication with the Trisolaran government and, driven by their hatred for humanity, proposes a complete annihilation of human life on Earth and elsewhere, thus being a proponent of an extreme type of settler colonialism combined with massive scale ethnic cleansing. Redemptionists – a less aggressive sort of a religious cult-fraction, worships the alien race as "the Lord" and wants to save them by making attempts at actually

mathematically solving the three-body problem – the instability of solar cycles in the Trisolaran star system, stalling their civilisational progress and being a possible cause of their future final demise – and at the same time of the Trisolaran world. The members of this fraction share the same central dogmatic – and thus not backed by any actual evidence – belief that also a dependent co-existence of both human and Trisolaran civilisations on Earth – the former as believers and the latter as the new gods they are to worship – will be possible, thus being proponents of a milder form of settler colonialism, assuming some sort of coexistence of the invader and the invaded. Finally, there are Survivors – the smallest and least influential of fractions willing to cooperate with Trisolaris in exchange for sparing their own descendants' lives, and also not caring for the fate of the rest of humanity, hence being proponents of settler colonialism, with voluntary servile collaborationism with the invader, as a caveat.

Historical instances of technological superiority in colonial domination up until the "Slicing of the Chinese melon" and why Liu Cixin's vision of first contact should be no surprise, regarding humanity's past?

If the claimed cultural or genetic supremacy of the invader over invaded is usually the main ideological justification for and premise of a colonisation attempt, the factual technological superiority is always the means by which it is achieved (Headrick 1981, 4). In the second book of the trilogy, *The Dark Forrest*, Liu introduces his "dark-forest theory" – his attempt at answering the Fermi Paradox – formulated in the 1950s by an Italian-American physicist Enrico Fermi and pointing out the evident contradiction between the estimated high probability of intelligent life croppin up all over the universe and the apparent lack of factual evidence thereof. (Jones 1985, 4) The main axiom of Liu's theory is that survival is always the primary concern of any civilisation, and therefore a given civilisation will do anything necessary to ensure it. The second axiom states that a civilisation grows and expands in a universe with a finite amount of matter and resources, hence every civilisation poses a threat to the survival of others, either as an active and present or a future threat to its existence, or by standing in the way of its developement. At contact, civilisations remain always uncertain as to whether the other is friendly or hostile, due to the possibility of any friendly message being potentially a bluff or even a decoy. With both civilisations facing this same predicament, Liu aptly named such a stalemate the "chain of suspicion", where all trust would, ipso facto,

have to be blind, and would therefore blatantly stand in violation of the first axiom of the dark forest theory. Thus the theory stipulates that any contact between two civilisations will inevitably always lead to mutual attempts at subjugation or extermination of the other, and that the technologically inferior one usually loses.

What has lead Liu to the formulation of his theory and the general wariness of any non-terrestrial first contact is the "slicing of the Chinese melon" – the 19th century era of Western, Japanese and Russian division of China into spheres of colonial influence – and the history of human colonialism in general. In a conversation with *The Atlantic's* journalist, Ross Andersen, he expressed a view that the colonial rule of Western powers over China is representative of larger patterns, also present in the history of Chinese imperialism in Asia itself. "Across history, it is easy to find examples of expansive civilizations that used advanced technologies to bully others", he said to Ross. (Ross 2017) Acording to Liu, humanity's current level of developement is, in the cosmic perspective, similar to aboriginal pre-colonial societies - underdeveloped, in contrast with European conquistadors. Thus, our potential future contact with an advanced extraterrestrial inteligence might turn out for us in much the same catastrophic way it has for them. In an article on this very subject written in 2014, he says "(…) if one were to evaluate the place of Earth's civilization in this universe, humanity seems far closer to the indigenous peoples of the Canadian territories before the arrival of European colonists (…). More than five hundred years ago, hundreds of distinct peoples speaking languages representing more than ten language families populated the land from Newfoundland to Vancouver Island. Their experience with contact with an alien civilization seems far closer to the portrayal in Three Body." (Liu 2014)

The roots of European colonialism are usually dated back to the Age of Discovery, which started in the early 15th century, when the seafaring Portuguese discovered a number of isles on the Atlantic, and sailing along the west coast of the African continent got as far as the Cape of Good Hope, thus paving the way for Vasco da Gama's journey to India, ended successfuly in 1498. The Portuguese, thanks to their superior naval technology, won the battle of Diu against a joint Mamluk and Arab fleet in 1509, which enabled them to implement their control of Indian Ocean. They won not only because of their superior weapons – arquebuses and clay granades filled with gunpowder – but also because generally Portuguese soldiers were experienced professional sailors recruited from among warrior nobility. To quote S.C. Bhatt who wrote extensively on the subject of colonialism in his

Land and People of Indian States and Union Territories, "Due to their overwhelming technical superiority, the Portuguese started the battle with a massive bombardment followed by hand-to-hand combat. (…) The Portuguese did not lose a single ship." (Bhatt 2006, 19) Just a year later, in 1510, Portugal conquered Goa in India and consolidated their domination? control? over most of the trade between Asia and Europe and, through further conquest, soon monopolised it completely.

In the 16th century, England and Denmark started to challenge Portuguese monopoly over trade with India, and in 1600, Queen Elizabeth I signed a charter bringing to life the East India Company. And even though the Company subsequently went on to win the Battle of Buxar in 1764, four Anglo-Mysore Wars, between 1767 and 1799, and two Anglo-Sikh Wars, between 1845 and 1849, the advanced Indian technical thought did not slip under the radar of English invaders. After killing the ruler of Mysore, Tipu Sultan, in 1799, which ended the last of Anglo-Mysore wars, the English shut down his firearm manufactories, but intercepted the, then unknown to them, technology of manufacturing rockets, used against them effectively by Mysorean troops. The rockets were studied, copied and tested by William Congreve, the controller of the Royal Laboratory at Woolwich, which led to the manufacture of rockets based on the same technology for British forces. Acording to research of Priya Satia, a Professor of modern British history at Stanford University: "Indian technical knowledge was shared in the networks of Britain's industrial enlightenment, even as Indians were excluded from those networks. (…) The crushing of indigenous arms manufacture was essential to British colonisation". (Satia 2018) After winning the Second Anglo-Maratha War in 1805, the British also took care to close down Maratha knowledge networks and industry, shutting artillery factories and taking control of small firearms manufacturing.

> „One mercenary described them as 'very excellent … far superior to the ordinary Europe arms'. Maratha small arms were better suited to the climate and local gunpowder; Maratha cannon combined iron and brass exteriors in an ingenious manner that made them lighter and more durable than British versions. British military observers admired the elevating screw used in larger cannon, which permitted 'a certain amount of interchangeability'." (ibid.)

The undermining and taking over control of indigenous Indian technological potential by British colonial forces was crucial in their assuming control over almost all of Indian territory by the 19th century.

The opium produced by the British in India was sold to Chinese

merchants in small quantities since as early as 1730 and its distribution was initially tolerated by the central Qing administration until its usage began to adversely affect Chinese social status quo. The Chinese government made numerous attempts at curtailment of opium addiction among its populace, which had little to no effect on opium trade: in 1796, the Qing dynasty Jiaqing Emperor issued an edict banning opium completely, followed in 1799 by a decision of the governor of the city of Guangzhou where the only large port accessible to the British was located, to stop the drug trade altogether. Then, in 1810, the Daoguang Emperor issued another edict severely disapproving of opium and, finally, in 1838 the Chinese government decided to crack down on the drug by actively sentencing Chinese traffickers of the drug to death, and publicly destroyed 1,000 tons of the drug on the banks of the Pearl River outside of Guangzhou. This incident, and a few minor ones, led to the two Sino-British Opium Wars during 1839–1842 and 1856–1860 respectively.

The technological disparity between Britan and China became clear right from the first skirmishes. The Royal Navy, with larger, more manoeuvrable ships, was able to evade Chinese boarding attempts. Thanks to speed and size, British steamships could move up Chinese rivers or against wind and were quantitatively and qualitatively better armed with the congreve rockets and heavy guns, which out-ranged the Chinese cannons. (Williamson 2017) Among the British fleet was the HMS Nemesis - a one of its kind flat-bottomed steamer built entirely of iron, whose pivot-guns and manoeuvrability made her invincible against Chinese junks and coastal artillery. (Ward Fay 1975, 260-63)

British rifles were also at an advantage in terms of accuracy, range and muzzle velocity. Her Majesty's soldiers were using large calibre muzzle-loaded Brunswick rifles and Brown Bess muskets, with range of 200-300 metres, equipped with percussion caps, which required no external spark to be fired. The production formula of British gunpowder was also superior to the Chinese, owing to greater content of sulfur. (Lee 2014)

Qing Navy had only one western-style warship – East Indiaman Cambridge. Chinese naval forces consisted mostly of slow-speed sailing war junks, poorly armoured, with weaponry smaller in numbers and inferior in quality, unfit against lager, faster, better armed and armoured, and in general more versatile British ships and steamers. HMS Nemesis, thanks to its manoeuvrability was able to decimate all fleets of Chinese junks.

Chinese defense relied heavily on land fortifications, designed mainly to fight off river pirates and equipped with domestically

produced cannons produced using poor quality iron. The gunpowder used by the Chinese had a higher charcoal content, and therefore muzzle velocity, range and penetration properties of projectiles was much lower. (Williamson 2017)

Brittan subsequently went on to win the Opium Wars with about 69 killed and 451 wounded. Whereas the Chinese side, overwhelmed by the enemy's technological superiority, suffered significant losses of estimated 18,000 to 20,000 killed and wounded. This overwhelming defeat started – what is to this day known in China as – a "Century of Humiliation". The Treaty of Nanking, which Qing government was forced to sign, seceded Hongkong to Brittan, and granted Brittan any privilege granted to any other power. This treaty led to a series of "Unequal Treaties" with foreign powers, and to the, already mentioned, „slicing of the Chinese melon" – the 19th century era of Western, Japanese and Russian division of China into spheres of colonial influence.

In Liu's vision, Earth's first contact with the alien Trisolarans is initiated by a young Chinese physicist, who receives a message from an alien pacifist, warning her neither to respond to him, nor to attempt to establish contact, or else his civilisation will locate and invade Earth. However, disillusioned with Humanity after having witnessed her father's death at the hands of the Red Guards, a student-led paramilitary organisation, during Chinese Cultural Revolution, she decides to use the satellite dish at the secret base she is working in and the sun's ability to amplify radio waves to broadcast a return message, thus taking revenge on the Humanity she has grown to despise.

The, described in the trilogy, possible developments of the subsequent attempt by the alien civilisation at colonising Earth not only represent various types of colonisation known from the history of terrestrial colonisation – mentioned in the introduction – but also the means by which the former is to be achieved is based on the same principles governing the latter. Namely, Trisolarans are employing their technological superiority, in the form of the 'Sophons', 'Wallbrakers' and the 'Droplet' probe, in order to subjugate and possibly annihilate humankind, and take over Earth.

Out of fear that Humanity might develop technology advanced enough to repulse their invasion, Trisolarans have laboriously created a proton-sized supercomputer called the Sophon. Owing to the Sophons' ability to travel at light-speed, two of them arrive at Earth much quicker than the invasion fleet, and are tasked with disrupting all Humankind's particle accelerators, causing chaotic and hence useless experiments' results, thus stalling Earth's technological progress.

The aforementioned ability to travel at light-speed makes them nigh-omnipresent within Earth, and able to record and transmit any spoken or written piece of information, with the only exception being thoughts, and all other phenomena taking place within one's mind.

Each of the two Sophons sent to spy on Earth has a corresponding unit – with which it is connected via quantum entanglement – in Trysolaris' possession. Quantum entanglement is a phenomenon in which the states of two particles stand in relation to one another in such a way that any change of the state of one of them instantaneously influences the state of the other, regardless of spatial separation, however large it might be. Thanks to this they have the ability to communicate without delay with the counterpart they are quantum-entangled with, giving Trysolarans the ability to spy on Humanity in real-time.

By rapidly moving in and out of human eye they are able to 'print' images directly onto the retina to convey messages and cause visual hallucinations – this being also their primary form of communication with humans.

In an attempt to circumvent the Sophons' ability to read every kind of data apart from human mind, the United Nations selects four "Wallfacers", tasked with coming up with a plan to defend Earth known only to themselves. To facilitate their full independence, they are granted access to all the resources available to the UN. In response, Trisolaris tasks the Earth-Trisolaran Organisation with determining and revealing the Wallfacers' endeavours. These agents, chosen by the ETO, become the Wallbreakers, who subsequently indeed manage to thwart the plans of all the Wallbreakers apart from one, an astronomer and sociologist, Luo Ji.

Unable to neutralise him with the help of a Wallbreaker, and after few failed assassination attempts, Trisolarans resorts, with the help of the ETO, to biological warfare, spreading a virus engineered to specifically target Luo Jo's genome. With his contemporary medicine not being able to cure him, he goes into hibernation until such a cure is found.

Despite the fact that biological weapons designed specifically to target a specific kind of DNA remain still only hypothetical, historical instances of using – also unintendedly – biological weapons in colonisation are well documented. During the XVI century Spanish conquest of the Inca, Aztec and Maya in South America, the single most effective weapon of conquistadors were the viruses they have unknowingly brought along from the Old Continent. The 1524 outbreak of smallpox in the Andes is estimated to have caused a native

population decline of the order of 30–50%. A subsequent outbreak of measles - another decline of 25–30%. Finally, the combined smallpox and measles epidemics occurred together between 1585 to 1591 leading to a further decline of 30–60%. These three epidemics having taken place one after another in short succession amounted to a cumulative decline of 93% compared with the pre-contact population in the Andes region. (Lovell 1992, 426–43)

Precisely at the time, when Luo Ji, the only remaining Wallfacer, announces to the United Nations his plans to use the Sun's radio wave amplification effect to broadcast the coordinates of the 187J3X1 star into outer space to a potential third observer civilization, Trisolaris' invasion fleet sends out Droplet probes - another weapon devised by Trisolaris to make sure ahead of time that Earth's defence forces would not be ready to counteract their invasion fleet's attack. Since the probes' maximal speed is 15% the speed of light, the first one arrives at Earth about 200 years later than the Sophons. Nonetheless, just like Sophons it is controlled through quantum entanglement communication, therefore Trysolarans' control over it has no range limit or delay of reaction. It is the size of a small lorry, has a weight of about ten tons, is able to accelerate from 0 to 31.7 km/s in 50 seconds and despite such speed is capable of taking 15-degree sharp angle turns without deceleration. Its perfectly smooth, mirror-like surface reflects radiation of all wavelengths, and has temperature of almost absolute zero - these characteristics are due to the substance it is made of, being based on the strong interaction, one of the four known fundamental interactions, approximately 137 times as strong as electromagnetism, and 1038 times as strong as gravitation, holding most ordinary matter together as it confines quarks into particles such as the proton and neutron. In order to make this material as dense as normal matter, but as tough as a neutron star, the Trisolarans have altered physical constants, making strong interaction have longer effective range. These characteristics allow it to penetrate through Earth like a hot knife through butter, what is proven true as it singlehandedly decimates human space fleet upon arrival - with only two out of thousands of space ships being able to flee. The probe then positions itself in the Lagrangian point between the Sun and the Earth, where the gravitational forces of the two bodies produce an enhanced region of attraction and repulsion, allowing the probe to 'park' itself there stably and broadcast a scrambling signal to prevent Earth from using the Sun's amplification mechanism again.

Conclusions

Technology is, since the Australopithecus has developed and employed his first stone tools 1.7 million years ago, one of the driving forces behind our ancestors' and our own development up until this day. Despite, however, its obvious many positive influences, humans have regrettably also used to employ it throughout the entire history to subjugate and exploit others, whether intra- – in the form of colonisation and slavery – or extraspecifically – in the form of mass scale industrial livestock production. Yet whether it should remain the case throughout the entire universe is still only a matter of conjecture and many such visionary literary predictions like the one postulated by Liu.

The Fermi Pradox has animated human imagination for almost three quarters of a century now, leading to many attempts at solving it. Remembrance of Earth's Past presents the reader with an attempt to explain the silence of the cosmos with the, seemingly unavoidable for an intelligent species' survival, conquest, subjugation and ruthless elimination of other intelligent species – a scenario heavily based on Humanity's own abundant intraspecific experiences with warfare, colonisation, mass murder and taking over of foreign land and resources.

However, recent developments in the research of anthropogenic climate change, seem to suggest a much more plausible answer to Fermi's riddle than that of interstellar warfare. With Humanity near-unavoidably approaching a point in time when the ongoing progressive warming of Earth's atmosphere will become impossible to stop, our potential prospective suicide becomes a logically acceptable potential reason behind the *silentium universi*. Should this turn out to be the reason behind one intelligence's demise, it might just potentially be true in other cases or even be a universal flaw of an advanced intelligence in general.

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