

# Rise Of A Corporate Empire

Dalrymple's commanding account of how Britain's East India Company conquered and looted India

MOHAMMAD FAROOQ

**William Dalrymple's latest book *The Anarchy: The Relentless Rise of the East India Company* provides a fascinating insight into the creation of the East India Company (EIC), its rise and subsequent involvement in the politics of India. Dalrymple, drawing on years of research, based on several sources has unlocked an image of a ravenous trading corporation which was, as it is stated in the book, "an empire within an empire", with the power to make war or peace anywhere in the East."**

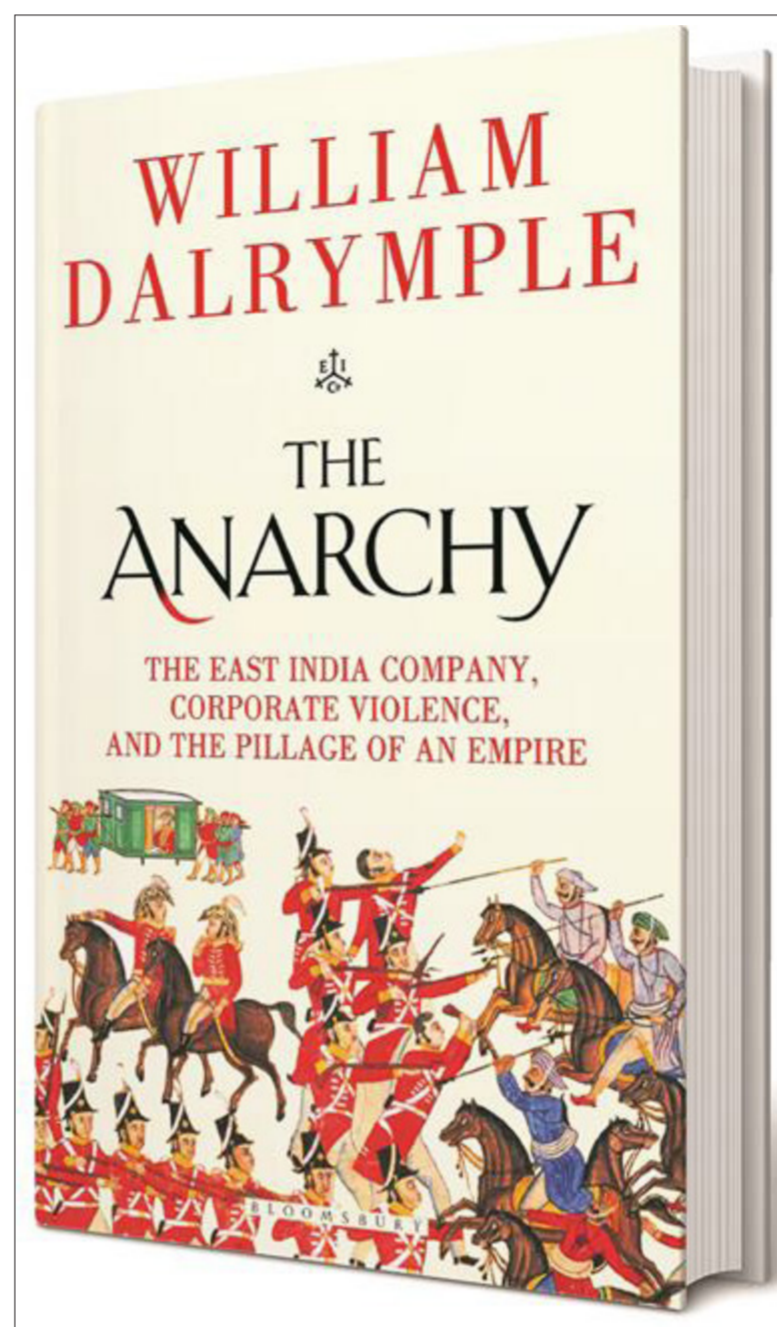
**A**BOUT four centuries ago, a commercial company incorporated in the name of serving the British crown, named East India Company, went on to become a juggernaut in the annals of modern corporate history. The East India Company - which would exercise unprecedented influence in India from the mid-18th century until its disbandment in 1857 - retained a hegemony over trade in India which was unparalleled till it was broken in 1813.

William Dalrymple's latest book *The Anarchy: The Relentless Rise of the East India Company* provides a fascinating insight into the creation of the East India Company (EIC), its rise and subsequent involvement in the politics of India. Dalrymple, drawing on years of research, based on several sources has unlocked an image of a ravenous trading corporation which was, as it is stated in the book, "an empire within an empire", with the power to make war or peace anywhere in the East."

Dalrymple, whose previous books include the renowned *White Mughals*, *The Last Mughal*, *City of Djinns* and *Return of the King* brings out all his repertoire of skills and exquisite research to uncover the expropriation, crimes and corporate lobbying committed by the EIC to gain access to unfettered power across India in a span of a few decades. As the author divulges, the book aims to answer as to how a single business entity was able to displace the eminent Mughal empire as masters of the subcontinent between the years 1756 to 1803.

Going into the internecine politics of Bengal, where the EIC established a foothold, what unfolds is a saga of twists, turns, betrayals, friends turning into foes and the titanic struggle to establish dominion in epic battles with its principal adversaries; the nawabs of Bengal and Avadh, Tipu Sultan's Mysore Sultanate and the great Maratha Confederacy. Robert Clive, the hero of the Battle of Plassey in 1756 and governor-general of Bengal played a pivotal role in establishing the political and military supremacy of the EIC in Bengal, Bihar and Orissa. The book explains how Clive enriched himself by earning large spoils from his exploits, which ended up in him procuring a seat in the House of Commons, by bribery.

One of the central characters in the book is the unfortunate but belittled Mughal Emperor Shah Alam whose reign, as it unfolds in the book, was marred by misfortune, horrific trials and tribulations. In trying to



**The Anarchy: The Relentless Rise of the East India Company**  
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re-establish the hold of the Mughals across India, he fought against the EIC at Patna and Buxar and was a survivor of repeated battles against Clive. The emperor was nearly successful in rebuilding the empire built by his ancestors with the assistance

of the last great Mughal general, Mirza Najaf Khan before his premature death.

The resource-rich province of Bengal, the coveted crown jewel in the EIC's growing assets in India during the period is subjected to political

victimisation, violence, expropriation of assets under its reign. Dalrymple also highlights the role played by Marwari bankers in bankrolling the EIC to topple SirajUdDaulah, and the shrewdness they exhibited in backing the winner as the old Indian elite disintegrated and the Mughal power was on the wane. Highlighting the cruelty and indifference exhibited by the EIC during the Great Famine of Bengal in 1770, in which it maintained the revenue rates to eke out maximum earning, as millions of people died due to starvation and dead corpses lined up in Calcutta and the Ganges, Dalrymple states that the failure to establish even a single soup kitchen to serve the starved and famished inhabitants shows the savageness of the EIC to the utmost core.

Unprecedented in the annals of corporate history, the EIC was able to maintain a militia of its own in India, which was larger than the entire army employed under the British crown during the period covered by the book. By 1799, the militia constituted of 200,000 Indian troops of which a meagre two percent were white officers. Interestingly, as the book points out, the army stuttered in battles against the troops of Hyder Ali and Tipu Sultan, who won a string of victories against the EIC in the early 1780s. However, Tipu Sultan despite being a heroic, valiant warrior on the battlefield failed to stem the tide as the EIC in a triple alliance with the Hyderabadis and Marathas inflicted a major defeat on him in 1792 and compelled him to cede half his kingdom to them. However, Tipu Sultan despite being severely weakened by the ceding of half his kingdom to the triple alliance kept fighting till his final defeat and death while battling Lord Wellesley and the EIC's army in 1799.

The ingenuity of Dalrymple lies in his ability to bring out a vast and expansive history of the EIC in *The Anarchy*, untangling such a complex web of characters, happenings into a single book which will leave the reader engrossed. The essence of the book resonates in its ability to highlight the ruthlessness and cruelty enacted by the EIC in conquering and expropriating resources in connivance with Indian actors and how it enriched itself in the process. The author neatly sums it up in the conclusion; "The East India Company remains today history's most ominous warning about the potential for the abuse of corporate power - and the insidious means by which the interests of shareholders can seemingly become those of the state."

## We Have Company: Scientists Have Discovered An Earth-Sized Exoplanet That May Be Habitable

The study of exoplanets - planets that orbit other stars - is currently in a transitional phase.

RAVI KUMAR KOPPARAPU

**A** few months ago, a group of NASA exoplanet astronomers, who are in the business of discovering planets around other stars, called me into a secret meeting to tell me about a planet that had captured their interest. Because my expertise lies in modeling the climate of exoplanets, they asked me to figure out whether this new planet was habitable - a place where liquid water might exist.

These NASA colleagues, Josh Schlieder and his students Emily Gilbert, Tom Barclay and Elisa Quintana, had been studying data from Transiting Exoplanet Survey Satellite when they discovered what may be TESS' first known Earth-sized planet in a zone where liquid water could exist on the surface of a terrestrial planet. This is very exciting news because this new planet is relatively close to Earth, and it may be possible to observe its atmosphere with either the James Webb Space Telescope or ground-based large telescopes.

### Habitable zone planets

The host star of the planet that Gilbert's team discovered is called TESS of Interest number 700 or TOI-700. Compared to the Sun, it is a small, dim star. It is 40% the size, only about 1/50 of the Sun's brightness, and is located about 100 light-years from Earth in the constellation Dorado, which is visible from our Southern Hemisphere. For comparison, the nearest star to us, Proxima Centauri, is 4.2 light-years away from Earth. To get a sense of these distances, if you were to travel on the fastest spacecraft - Parker Solar Probe - to reach Proxima Centauri, it would take nearly 20,000 years.

There are three planets around TOI-700: b, c and d. Planet d is Earth-sized, within the star's habitable zone and orbits TOI-700 every 37 days. My colleagues wanted me to create a climate model for Planet d using the known properties of the star and planet. Planets b and c are Earth-sized and mini-Neptune-sized, respectively. However, they orbit much closer to their host

star, receiving 5 times and 2.6 times the starlight that our own Earth receives from the Sun. For comparison, Venus, a dry and hellishly hot world with surface temperature of approximately 860 degrees Fahrenheit, receives twice the sunlight of Earth.

Until about a decade ago, only two habitable zone planets of any size were known to astronomers: Earth and Mars. Within the last decade, however, thanks to discoveries made through both ground-based telescopes and the Kepler mission - which also looked for exoplanets from 2009 to 2019, but is now retired - astronomers have discovered about a dozen terrestrial-sized exoplanets. These are between half and two times larger than the Earth within the habitable zones of their host stars.

Despite the relatively large number of small exoplanet discoveries to date, the majority of stars are between 600 to 3,000 light-years away from Earth - too far and dim for detailed follow-up observation. TESS has discovered its first Earth-sized planet in its star's habitable zone, the range of distances where conditions may be just right to allow the presence of liquid water on the surface.

### Liquid water is crucial

Unlike Kepler, TESS' mission is to search for planets around the Sun's nearest neighbors: those bright enough for follow-up observations. Between April 2018 and now, TESS discovered more than 1,500 planet candidates. Most are more than twice the size of Earth with orbits of less than 10 days. Earth, of course, takes 365 days to orbit around our Sun. As a result, the planets receive significantly more heat than Earth receives from the Sun and are too hot for liquid water to exist on the surface.

Liquid water is essential for habitability. It provides a medium for chemicals to interact with each other. While it is possible for exotic life to exist at higher pressures, or hotter temperatures - like the extremophiles found near hydro-thermal vents or the microbes found

half a mile beneath the West Antarctic ice sheet - those discoveries were possible because humans were able to directly probe those extreme environments. They would not have been detectable from space.

When it comes to finding life, or even habitable conditions, beyond our solar system, humans depend entirely upon remote observations. Surface liquid water may create habitable conditions that can potentially promote life. These life forms can then interact with the atmosphere above, creating remotely detectable bio-signatures that Earth-based telescopes can detect. These bio-signatures could be current

Earth-like gas compositions - oxygen, ozone, methane, carbon dioxide and water vapor - or the composition of ancient Earth 2.7 billion years ago - mostly methane and carbon dioxide, and no oxygen.

We know one such planet where this has already happened: Earth. Therefore, astronomers' goal is to find those planets that are about Earth-sized, orbiting at those distances from the star where water could exist in liquid form on the surface. These planets will be our primary targets to hunt for habitable worlds and signatures of life outside our solar system.

### Possible climates

To prove that TOI-700 d is real, Gilbert's team needed to confirm using data from a different type of telescope. TESS detects planets when they cross in front of the star, causing a dip in the starlight. However, such dips could also be created by other sources, such as spurious instrumental noise or binary stars in the background eclipsing each other, creating false positive signals. Independent observations came from Joey Rodriguez at Center for Astrophysics at Harvard University. Rodriguez and his team confirmed the TESS detection of TOI-700 d with the Spitzer telescope, and removed any remaining doubt that it is a genuine planet.

My student Gabrielle Engelmann-Suissa and I used our modeling software to figure out what type of

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climate might exist on planet TOI-700 d. Because we do not yet know what kind of gases this planet may actually have in its atmosphere, we use our climate models to explore possible gas combinations that would support liquid oceans on its surface. Engelmann-Suissa, with the help of my longtime collaborator Eric Wolf, tested various scenarios including the current Earth atmosphere (77% nitrogen, 21% oxygen, remaining methane and carbon dioxide), the composition of Earth's atmosphere 2.7 billion years ago (mostly methane and carbon dioxide) and even a Martian atmosphere (a lot of carbon dioxide) as it possibly existed 3.5 billion years ago.

Based on our models, we found that if the atmosphere of planet TOI-700 d contains a combination of methane or carbon dioxide or water vapor, the planet could be habitable. Now our team needs to confirm these hypotheses with the James Webb Space Telescope.

### Strange new worlds

The climate simulations our NASA team has completed suggest that an Earth-like atmosphere and gas pressure isn't adequate to support liquid water on its surface. If we put the same quantity of greenhouse gases as we have on Earth on TOI-700 d, the surface temperature on this planet would still be below freezing.

Our own atmosphere supports a liquid ocean on Earth now because our star is quite big and brighter than TOI-700. One thing is for sure: All of our teams' modeling indicates that the climates of planets around small and dim stars like TOI-700 are very unlike what we see on our Earth.

The field of exoplanets is now in a transitional era from discovering them to characterising their atmospheres. In the history of astronomy, new techniques enable new observations of the universe including surprises like the discovery of hot-Jupiters and mini-Neptunes, which have no equivalent in our solar system. The stage is now set to observe the atmospheres of these planets to see which ones have conditions that support life.

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