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Sunlight, Hair Oil, and Fatal Engines: Proto-Science Fiction and Anti-Imperial Technology in Turn-of-the-Century Colonial Literature

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ABSTRACT

Most histories of science fiction trace the genre from Europe to America treating speculative writing from colonies as late or borrowed. This paper studies three texts published between 1871 and 1921 to show that colonized writers helped shape the speculative imagination from the beginning. *The Battle of Dorking* (1871) was written by an English-born engineer, George Tomkyns Chesney, who served the empire in India. In his story, technology means weapons, coal, and colonial wealth, and Britain's great fear is to be conquered and taxed as it conquered and taxed others. Jagadish Chandra Bose's "Niruddesher Kahini" (1896), revised in 1921 as "Palatak Tufan," mocks colonial weather science and European scientists. In it, a bottle of Indian-made hair oil stops a cyclone that the experts could neither predict nor explain. Rokeya Sakhawat Hossain's "Sultana's Dream*"* (1905) imagines a nation run by women scientists on solar power, without conquest. We argue that the two Bengali stories present an anti-imperial idea of technology. Their technologies belong to people whom the empire called incapable; they work without war or plunder, and they expose the weakness of colonial science. We also argue that satire gives Bose and Hossain an advantage that Chesney's fearful warning lacks. All three texts show the ruling power failing at technology, but only the colonized writers turn that failure into a challenge to the right to rule. The paper ends by marking the limits of this challenge and the limits of our own position as readers from a formerly colonized country.

INTRODUCTION

Most of science fiction illustrate a story that starts in Europe. The genre of sci-fi starts with Mary Shelley's Frankenstein (1818), grows through the novels of Jules Verne and H. G. Wells, and gains its name and its mass readership in American pulp magazines after 1926 (Aldiss & Wingrove, 1986). Writing from Asia, Africa, and Latin America enters the genre late, usually as a twentieth-century copy or a postcolonial reply. Over the last two decades, scholars have challenged this claim by showing how closely early science fiction was tied to empire.

This paper offers that comparison through three texts published between 1871 and 1921. George Tomkyns Chesney's *The Battle of Dorking* (1871/1914) began the British genre of invasion stories, and we use it as our imperial point of reference. Our colonial counter-texts are Jagadish Chandra Bose's comic story "Niruddesher Kahini" (1896), revised in 1921 as "Palatak Tufan" and translated into English as "*Runaway Cyclone"* (Bose, 1896), and Rokeya Sakhawat Hossain's "Sultana's Dream" (1905). All three texts ask the same question. What does a technologically powerful society stand on, and who has the right to use technical knowledge? Chesney (1871) links technology to weapons, coal, and colonial wealth, and his deepest fear is that the machinery of empire might one day be turned against Britain. Bose (1896) and Hossain (1905) go for different answers. They use a bottle of hair oil packed by a child and a solar kitchen run by a woman scientist as their key technology. These technologies are small and domestic, they take nothing from anyone, and they belong to people whom colonial thinking called technically backward. The two stories reject what Michael Adas (1989) calls the idea of machines as the measure of men. This was the nineteenth-century belief that technology could rank civilizations and justify the rule of some peoples over others.

There are two further arguments. The first is associated with position. Chesney was born in England and served the empire as an engineer and administrator. Bose and Hossain were Bengalis born in what is now Bangladesh, and they lived as colonial subjects. Their perceptions of colonial authority are different, and the difference is evident in the form of their writing. Chesney (1871) writes a fearful warning that blames Britain for its weakness but never questions its right to rule. Bose (1896) and Hossain (1905) may have intended satire, which allows them to critique the authority indirectly. In our view, this gives the Bengali stories a sharper critical edge that Chesney's story lacks. The second point is about failure: in all three stories, the technologically advanced power fails. But while Chesney (1871) sees this failure as a temporary problem that can be fixed with more money and weapons, Bose (1896) and Hossain (1905) see it as proof that the rulers' claim to superior knowledge is a complete lie. Because of this, we believe the two Bengali stories are far bolder and more genuinely radical.

We do not claim that these colonial stories were simple calls for revolution. Their stories challenge the empire

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mostly through ideas about knowledge and money. This critique is shaped by the authors' social class and, in Bose's case, by the trade of everyday Indian goods. The paper is constructed with six parts. The first part studies past literature and explains our key terms. The second one discusses methods, our choice of texts, and our own position as readers. The third one reads *The Battle of Dorking*. The fourth part reads Bose's story, including the important differences between its two versions, and Hossain's utopia. The fifth section compares the three texts directly, and the sixth chapter considers what they mean for the history of science fiction.

Key Terms, Texts, and Approach

This paper draws on literary studies, the history of science, and postcolonial theory, and each of these fields has its own technical words. We want the paper to be clear to readers in many countries, including readers for whom English is a second language. Table 1 explains our key terms in clear words. Two of these terms, proto-science fiction and anti-imperial technology, need a more complete discussion, which is placed after the table.

Table 1: Key terms used in this paper

Term	Meaning in this paper
Technology	Tools, machines, and methods, together with the knowledge needed to make and use them. In this paper the word covers both real and imagined devices, from naval weapons to hair oil.
Speculative fiction	Fiction about worlds that do not exist but could exist. It is often set in the future or built around a new invention or discovery.
Proto-science fiction	Speculative stories based on science or technology that were written before "science fiction" became a named genre in the 1920s. "Proto" means early. See the discussion below the table.
Kalpavigyan (also kalpabigyan)	The Bengali word for science fiction. It joins kalpa (imagination) and vigyan (scientific knowledge) (Chattopadhyay, 2016).
Novum and cognitive estrangement	Two terms from Darko Suvin (1979). The novum is the new element, such as an invention, that makes a story's world different from ours. Cognitive estrangement is the effect of a world that feels strange but still makes rational sense.
Invasion literature	British stories, popular from 1871 to 1914, that imagined Britain being invaded and defeated by a foreign power (Clarke, 1992).
Metropole and metropolitan speculative fiction	The metropole is the center of an empire (here Britain), as opposed to its colonies. Metropolitan speculative fiction is written in the imperial center for readers there.
Colonial discourse	The writing, speech, images, and forms of knowledge through which a colonial power describes the people and places it rules, often in ways that justify its rule (Said, 1978).
Colonial meteorology as colonial discourse	Meteorology is the science of weather. Colonial meteorology was the weather science of the colonial government in India. It tracked storms and sent warnings, and it also presented the colonial state as the power that could know and manage India's nature. In that second role it worked as colonial discourse (Amrith, 2018).
Reverse colonization	Stephen Arata's (1990) term for stories in which the imperial center fears being invaded or ruled by others, in the way it ruled its colonies.
Mythologerm	Chattopadhyay's (2016) term for the habit of retelling the history of science through myth, for example by treating myth as a source of advanced science.
Purdah, zenana, and mardana	Purdah is the custom of keeping women apart from men outside the family. The zenana is the women's part of a house, and the mardana is the men's part. In "Sultana's Dream," the men are kept in the mardana.
Swadeshi	A Bengali word meaning "of one's own country." Refers to a movement, strongest after 1905, that urged Indians to buy Indian goods and refuse British ones (Sarkar, 1973).
Anti-imperial technology	Our term for an imagined technology that challenges imperial power. We use three tests to identify it, explained below the table.

Proto-Science Fiction and Kalpavigyan

The word "proto" can suggest that these texts were rough drafts of a genre that had not yet arrived. We use it only in a historical sense. A proto-science fiction story is built around a new idea based on science or technology, which Darko Suvin (1979) calls the novum, and it was written before science fiction existed as a named and marketed category. Suvin's (1979) idea of cognitive defamiliarization is useful here because it links a story's strange world to what its readers know. All three of our texts work in this way. Each story built their arguments on a technical idea that the story treats as acceptable and logical, whether an unseen naval weapon, a film of oil on water, or a machine that stores the heat of the sun. This lets us read our texts

as part of the genre's formation. We do not need to judge these early stories by today's sci-fi standards and dismiss them as basic or undeveloped

Chattopadhyay (2016) argues that Indian writers did not strictly distinguish between science and fantasy. They often retold the history of science through a myth, which he calls the mythologerm. This concept explains how Bose's story can start off as a lighthearted sci-fi parody and end with a magic hair oil, all while still taking science seriously.

Three Tests for Anti-Imperial Technology

The phrase "*anti-imperial technology*" needs a clear definition. It cannot simply mean technology used by colonized people, because colonized people ran many of the railways, telegraphs, and survey instruments of the colonial state. Drawing on postcolonial studies of science and technology (Anderson, 2002; Arnold, 2000; Prakash, 1999), we propose three tests. The first test is about agency, which means the power to act. Do colonized men or women—the very people the empire viewed as incapable—actually understand and control this technology? The second test is related to economics. Can this technology actually function without relying on invasion, stealing resources, or exploiting people and land? The third test justifies knowledge. Does the story use technology to question colonial authority—for instance, by showing where Western science fails or proving that real knowledge actually lies with others? A text does not need to pass all three tests equally. The tests simply help us to decide what kind of challenge each technology makes.

LITERATURE REVIEW

John Rieder (2008) argues that colonial history and colonial ideas run through the genre itself. He finds them in the genre's repeated jump between dreams of discovery and fears of disaster. Patricia Kerslake (2007), Istvan Csicsery-Ronay Jr. (2003), and Jessica Langer (2011) have extensively studied the empire in science fiction. Most of this study still focuses on writings from the ruling country. While it shows how the colonizers thought, it tells us very little about what the colonized people actually thought or felt.

Mary Ellis Gibson's 2019 book collects early English sci-fi stories written in India—long before famous authors like Jules Verne and H.G. Wells made the genre popular. Gibson (2019) argues that the violence and disorder of colonial rule gave writers in India strong reasons to imagine other futures. Suparno Banerjee (2020) reads Indian science fiction in many languages as a mixing of Indian and Western cultures. Bodhisattva Chattopadhyay's work on kalpavigyan, the Bengali word for science fiction, shows how writers of the colonial period rewrote the history of science itself (Chattopadhyay, 2013b, 2016). Studies of Rokeya Sakhawat Hossain and Jagadish Chandra Bose have followed (Bhattacharya & Hiradhar, 2014, 2019; Höne, 2023; Kuiti, 2022; Mathur, 2004). What is still missing is a close comparison that places these colonial stories beside the British speculative fiction of the same years. Such a comparison can show what exactly made the colonial stories' technology anti-imperial, and where their challenge to empire stopped.

Anderson (2002) offers a theoretical framework for framing science and technology through postcolonial theory. It moves past the binary model of "metropolis vs. periphery" to examine the transnational traffic, border zones, hybridity, and power dynamics embedded in modern technoscientific practices and global knowledge flows. Arnold (2000) investigates how medicine, state infrastructures, and technological projects functioned as "tools of empire", while demonstrating that indigenous practices actively shaped and altered colonial science rather than merely submitting to it. Gyan Prakash (1999) shows an important fact about colonial India. Science was viewed a sign of Western power there, and it was also the language educated Indians used to prove they were modern and capable of governing their own nation. Bose and Hossain wrote from right in the middle of this double identity.

MATERIALS AND METHODS

Texts, Language, and Period

Because this study focuses on English-language colonial literature, our choice of stories needs a brief explanation. *The Battle of Dorking* and "Sultana's Dream" were both originally written and published in English. Bose's story is a bit more complex, as its original 1896 version combined Bengali and English together. The story itself was told in Bengali, but much of its science was in English, including a fake report from Scientific American at the end. The 1921 version is entirely in Bengali (Chattopadhyay, 2013a). We therefore use "Anglophone" for a world of print rather than for a single language. This was the English-language world of magazines, news agencies, newspapers, and scientific bodies, such as Blackwood's, Nature, the British Association, Reuters, and the British-run daily papers of India. All three texts were written within this range and against it. Bose's move from a mixed-language story to a Bengali-only story is itself one of the most revealing events in our history. Quotations from Bose follow Chattopadhyay's (2013c) English translation, which uses the 1921 text and holds the main changes from 1896 in its notes. Quotations from Chesney and Hossain come from public-domain editions and have no page numbers. Our period runs from Chesney's story in 1871 to Bose's revision in 1921. British Crown rule was firmly established in India in these fifty years. They also include the Partition of Bengal in 1905, the Swadeshi movement that followed it, and the move of the capital of British-India from Calcutta to Delhi in 1911. Each of these events affects our texts. Our method combines close reading with attention to where and how each text was published and revised. Inspired by Edward Said (1993), we read British and colonial texts side by side as parts of one shared

history. Said (1993) coins this a "contrapuntal" reading, using a term from music for two separate melodies played together.

Reading from a Formerly Colonized Country

Every reading comes from a particular place, and so does ours. This is a comparison made from a postcolonial point of view. The authors of this paper come from Bangladesh, a formerly colonized country and the region where both Bose and Hossain were born (Geddes, 1920; Jahan, 1988). Our aims and assumptions may therefore differ from those of a European critic. A European reader might treat *The Battle of Dorking* mainly as a record of British national fear, and might treat the Bengali stories mainly as interesting additions to a world history of the genre. We read the Bengali stories as part of our own colonial past. This makes us especially alert to how colonial authority appears in all three texts, and perhaps quicker to value acts of resistance. Dipesh Chakrabarty (2000) argues that European ideas are necessary for understanding modern South Asia but are never enough on their own. Our position follows from this view. It is a strength, because it raises questions that Eurocentric criticism has often ignored. It is also a limitation. Sympathy for the colonized writers may lead us to see resistance where a more doubtful reader would see compromise. We have tried to guard against this by marking clearly where these stories stop short of challenging empire. We begin with the British side of this shared history, because the colonial stories make most sense when read against it.

RESULTS AND DISCUSSION

Technology, Coal, and the Fear of Being Colonized in *The Battle of Dorking*

A Colonial Engineer Imagines Defeat

Critics rarely point out that the first British invasion story was written by one of the main builders of colonial engineering for India. Chesney joined the Bengal Engineers in 1848, worked in India's Public Works Department, and was badly wounded at the siege of Delhi in 1857, during the great Indian uprising against British rule. From 1860 he ran the department's accounts, and his book Indian Polity (1868) became a standard guide to how British India was governed ("Chesney, George Tomkyns," 1901). In 1871, the year of *The Battle of Dorking*, he became the first president of the Royal Indian Engineering College at Cooper's Hill in Surrey. The college was created as he insisted to train engineers for India's Public Works Department ("Institutions of Imperialism," n.d.; Kirkwood, 2012). The man who imagined Britain's technical defeat was responsible for training the technical workforce of the empire. Patrick Kirkwood (2012) argues that Chesney was a more important figure than most scholars allow, and his colonial career is the key to reading his story's view of technology.

The story appeared without the author's name in Blackwood's Edinburgh Magazine in May 1871, just after the Franco-Prussian War (Kirkwood, 2012). It got huge success. After the magazine issue was reprinted several times, the story was sold more than 80,000 copies as a sixpenny booklet in June 1871 alone and 30,000 more in July (Kirkwood, 2012). Prime Minister Gladstone criticized its concerns in public (Clarke, 1965). I. F. Clarke, whose histories of future-war fiction remain basic reading (1992), called it "the first hot story in the first cold war" (1965). A. Michael Matin (2011) has traced how the story entered military debates about national defense, and Christian Melby (2020) has shown how the invasion stories that followed it imagined a British world held together across space and time.

Fatal Engines and the Silent Telegraph

Chesney's view of technology is built on surprise and on the fear of falling behind. The Royal Navy loses without a real fight, because it is destroyed by a weapon it never sees. The enemy is never named, but its officers speak German, and the narrator addresses one of them as "Herr Hauptmann" (Chesney, 1871). Readers in 1871 understood the enemy as the new German Empire (Clarke, 1965). The narrator tells how the enemy's ships, "sheering off, left behind them the fatal engines which sent our ships, one after the other, to the bottom," and all of this "almost in a few minutes" (Chesney, 1871). He adds that the government "had received warnings of this invention" (Chesney, 1871). In this story, British technology is plainly weaker than the enemy's. Technology is a race between states, in which one side's gain is the other side's loss. It is secret, military, and owned by rivals, and to lack it is to be destroyed.

The telegraph network held the empire together. Dominic Davies (2017) has shown that such networks appear in colonial fiction as tools of control and also as places of resistance. In Chesney's story, the network becomes the means by which Britain watches its own defeat. Technology in *The Battle of Dorking* is never a neutral background. It either guarantees power or brings ruin.

Coal, Colonial Wealth, and Reverse Colonization

The saddest part at the end of the story shows what it's really all about. The narrator explains why Britain never recovered, unlike defeated France. Empires are surprisingly honest about how they built their power. British power rests on wealth produced in Asia and on coal and iron. Historians such as Andreas Malm (2016) and Timothy Mitchell (2011) have argued that fossil fuel and imperial extraction depended on each other in nineteenth-century capitalism. Chesney sees the same link. But his answer is to defend this foundation with a larger and better-trained army. He never questions the foundation itself.

The defeat that Chesney imagines for Britain closely reflects the experience of colonial rule. The winners force Britain to pay a huge sum and impose taxes. Their troops live "at free quarters," which means that British households must keep and feed them for nothing. Stephen Arata (1990) uses the term "reverse colonization" for late-Victorian stories in which Britain fears invasion by forces that reflect its own colonial violence. Thomas

Graf (2024) reads Chesney's story as one that pictures Britons as colonized subjects. Britain ruled much of India by keeping local leaders in charge while quietly taking all their money using official-looking laws. This detail matters, because the author had spent years running the accounts of India's Public Works Department. In our reading, *The Battle of Dorking* contains a hidden admission of what empire does to the ruled. Chesney uses that information only to argue for more soldiers.

Four features of this imperial model matter for the following comparison. Technology is tied to weapons and competition between states. Its material base is coal and colonial wealth. Its authority lies in institutions, since the story was written to push Parliament, the army, and the state to reform and reorganize. And the colonized are absent as actors and present only as a drain on imperial power. We have found no evidence that Bose or Hossain read Chesney's story, and our readings do not depend on direct influence. The three authors read and wrote for the same print culture in which the invasion plot, the decisive secret weapon, and the authority of European science were common ideas. The colonial writers took up these ideas and modified their terms. Twenty-five years after Chesney, a Bengali physicist demonstrated a different aspect of what technology could do.

Hair Oil Against the Cyclone in Jagadish Chandra Bose's "Runaway Cyclone"

A Scientist in the Colonial Academy

Jagadish Chandra Bose, born in 1858 in eastern Bengal (now part of Bangladesh), studied at Cambridge, where his teachers included Lord Rayleigh, and in 1885 he was appointed professor of physics at Presidency College, Calcutta. His father was a deputy magistrate in British service (Dasgupta, 1999; Geddes, 1920). Colonial education officials did not want to give an Indian a post usually kept for Europeans. When Bose was offered a lower salary than his European colleagues, he refused to take any pay for three years until the college agreed to pay him equally (Dasgupta, 1999; Geddes, 1920). In 1895 he showed in Calcutta that he could send and detect very short radio waves, now called millimeter waves, and he later lectured on this work in London (Emerson, 1997). He got a U.S. patent for his crystal detector, filed in 1901 and granted in 1904 (Bose, 1901/1904). He did not want to take profit from it, and he generally opposed patenting scientific work (Emerson, 1997). Over time this history has been simplified into the legend that he refused to patent anything. Ashis Nandy (1995) reads Bose as a man caught between the universal claims of Western science and the wish for a truly Indian creativity. Subrata Dasgupta (1999) studies him as a case of how Indians responded to Western science. Both readings help to explain the story Bose wrote in 1896.

Colonial Meteorology as Colonial Discourse

Bose's main target in the story is the colonial weather service. In 1864 a great cyclone struck Calcutta and killed more than 50,000 people. The British government then established a weather forecast office to detect storms in the Bay of Bengal from reports they would get from ships and to send warnings to the coast by telegraph. The India Meteorological Department was formally founded in 1875 (Amrith, 2018; Chattopadhyay, 2013a). So, weather forecasting was seen as more than a science. It was a tool used by the colonial rulers that connected telegraphs, weather observatories, and shipping routes into a single network of information. It also carried a message. By forecasting storms, the colonial state presented itself as the only power that could know and manage India's nature. This is what we mean by colonial meteorology as colonial discourse. Sunil Amrith (2018) has shown that the wish to know and control Asia's waters drove colonial planners and, later, nationalist ones as well. Bose's story attacks this claim directly.

A Story Written for a Hair Oil Contest

In 1896 the businessman, Hemendra Mohan Bose, started a yearly fiction prize to promote his 'Kuntaline' hair oil. Every entry had to feature the oil, and Jagadish Chandra Bose's story was the first winner (Chattopadhyay, 2013a). Hemendra Mohan was active in the Swadeshi movement, which urged Indians to purchase Indian goods (Sarkar, 1973). Chattopadhyay (2013a) argues that Bose turned this commercial product into a symbol that connected scientific work to national hope. The anti-imperial technology of Bose's story is, first of all, an advertisement. This fact should make us careful about readings that turn the story into an attack on capitalism. Its politics belong to Indian business and consumerism. It does not reject the market.

Laughing at Scientific Authority

The story has two parts. The first part mocks the sciences of the colonial state. One paper declares that in Chattopadhyay's translation, scientific knowledge is completely false. Others ask why taxpayers should pay for the department at all. The government worries about its costly new instruments and about where to move the department's chief. It proposes a new chair at the Calcutta Medical College to study how air pressure affects the human body. He suggests placing the chair in the hill town of Shimla, where every kind of pressure is lighter (Bose, 1896/2013). The joke uses concepts from physics mock colonial rule. It treats sickness, exams, and taxes as heavy burdens, while mocking the rulers who hid away in their summer retreat to escape the city they were supposed to run.

European science doesn't do any better, either. A paper in Nature claims that the storm was pulled away by the gravity of an invisible comet. In the 1921 version, a German professor gives a learned lecture to the British Association at Oxford. He speaks about the origin of the atmosphere, about gravity and mass, and about matter breaking apart under radium. He explains everything except why the cyclone vanished (Bose, 1896). The 1896

version gives only the title of his paper, "On a Vanished Cyclone," by a "Herr Stürm," a name that puns on the German word for storm. It also points to a second joke theory, that the fierce reputation of the Lieutenant-Governor of Bengal, out for a walk at Diamond Harbour, had frightened the storm away (Bose, 1896). Radium was discovered only in 1898, and the kinds of radiation the professor mentions were identified in the years after that. Bose clearly updated his satire for the new physics of the early twentieth century. One passage in the 1921 lecture deserves special attention. The professor explains that lighter substances escape gravity more easily. He then adds that this rule may not hold outside physics, since in India the heavier men are free while the lighter women are tied to the home (Bose, 1896/2013). Here a scientific image makes a social hierarchy look natural. "Rokeya Sakhawat Hossain's utopia flips this exact idea upside down.

The Oil, the Daughter, and the Science behind the Satire

The idea behind the hair oil joke is more serious than it looks. Sailors had long used oil to calm rough seas, and the practice had a real scientific history. Benjamin Franklin reported his experiment with oil on a pond at Clapham to the Royal Society in 1774 (Franklin *et al.*, 1774). In 1890 Lord Rayleigh, Bose's own teacher, measured how far a small amount of oil spread on water in order to estimate the thickness of the film (Rayleigh, 1890) In 1891, Rayleigh helped publish a letter in Nature written by Agnes Pockels—a German woman with no university degree who had carefully measured oil films right in her own kitchen (Lohse, 2023; Pockels, 1891; Rayleigh, 1890). When Bose's narrator recalls a scientific journal, then, the story points to a live field of research in the work of Bose's own teacher. The comedy lies in scale and source. A household amount of cosmetic oil, packed by a child, defeats a cyclone in the Bay of Bengal. The fact that the rescue comes through a daughter's care is no accident, and we return to it in our comparison.

We should not give the narrator too much credit. He does not plan out a clever solution—he just panics, and the world around him reacts. Instead of showing a grand victory over colonial science, the story uses irony to make its point. And its sharpest point is this: official institutions like the Alipore Observatory, the journal Nature, and the British Association claim to understand the natural world, yet they refuse to accept that a colonized man might actually be right. His knowledge is completely ignored and unrecorded. We see this as a direct metaphor for Bose's own struggles within the colonial scientific world.

Two Versions and Two Strategies

The 1896 and 1921 versions have significant differences, and critics disagree about what the changes refer to. In 1896, the story mixed Bengali and English, with much of the science in English. It included a news line sent by a Reuters reporter to the Times, which warned that "The Capital of our Indian Empire is in danger" (Bose, 1896). It ended with a fake report in English from Scientific American. The report explained that a passenger on the Chusan had thrown a bottle of Kuntaline overboard. According to the report, the oil film "produced a wave of condensation, thus counteracting the wave of rarefaction to which the cyclone was due" (Bose, 1896). The 1921 version, published in the essay collection Abyakta, is entirely in Bengali. It drops the line about the imperial capital, which had moved to Delhi by then, and it drops the scientific ending. It also renames the oil *"Kuntal Keshari"* and gives it a new origin story. An English circus manager, whose lion has lost its mane on the voyage to India, bows down before a sanyasi, a Hindu holy man who has given up worldly life. The sanyasi gives him an oil whose formula was found in a dream, and the lion's mane grows back within a week (Bose, 1896; Chattopadhyay, 2013a).

Anil Menon and Vandana Singh (2013) state the revision of Bose's story as a loss of achievement. In their view, it removed much of the first version's messages by basing the oil's power on magic instead of science. Christin Höne (2023) disagrees. She reads the story's mix of science fiction and magical realism as a philosophy of science that combines Western science with Indian thought, and she argues that this philosophy is anticolonial. We believe both perspectives hold some truth, and we view the two versions as distinct approaches to resisting colonial power. The 1896 version uses what Homi Bhabha (1994) calls mimicry. The colonized writer copies the colonizer's language in a way that is "*almost the same, but not quite,"* and the small difference mocks the original (Bhabha, 1994, p. 86). Bose writes in the confident English of popular science journalism in order to show how empty that confidence can be. His fake physics of condensation and rarefaction sounds convincing only because it copies the form of a scientific report. The 1921 version, revised after the Swadeshi years and during Gandhi's Non-Cooperation movement, completely leaves English behind. It places the source of useful knowledge in an Indian holy man. Its picture of an Englishman bowing before a sanyasi reverses the "civilizing mission," the British claim that they ruled India in order to improve it. he hairless lion restored by Indian knowledge also represents British imperial pride—a pride that relies entirely on looking down on others.

The second strategy is also the riskier one. Chattopadhyay's (2016) idea of the mythologerm urges a real danger. Placing scientific authority in Indian tradition can let knowledge be free from colonial control. It can also prepare the ground for later nationalist claims that ancient India already knew modern science. The way Bose's story evolved—from a satirical piece in English to a legendary myth in Bengali—reflects the tension that would define Indian science and science fiction for the next century. Bose's satire attacks colonial science from the outside. Nine years after his story first appeared, Hossain went further and imagined a whole society built on a different kind of science.

Sunlight without Coal in Rokeya Sakhawat Hossain's "Sultana's Dream"

Writing in English from the Zenana

Rokeya Sakhawat Hossain, a self-taught scholar and activist, wrote "Sultana's Dream" in English to pass the time while her husband was away on official tour, partly to show him how well she could write the language. He encouraged her to send it to The Indian Ladies' Magazine in Madras, which published it in 1905. It appeared as a book in 1908 (Bagchi, 2005; Jahan, 1988).

Paradigm Shift of Purdah

When Sultana objects that men are stronger, Sister Sara answers, "A lion is stronger than a man, but it does not enable him to dominate the human race" (Hossain, 1905). When Sultana adds that men's brains are bigger and heavier, she learns that an elephant's brain is heavier still, "Yet man can enchain elephants and employ them, according to their own wishes" (Hossain, 1905). These exchanges attack a common Victorian belief, often supported by scientists who measured skulls and brains, that the larger size of men's bodies proved their superiority (Russett, 1989). Hossain turns scientific argument against its own misuse. Bose's German professor commits exactly this misuse when he explains the confinement of Indian women through the physics of mass.

Technology for Daily Life

Hossain uses are collectors, stores, and pipes for solar heat. They are not solar panels that make electricity, and her transports are flying cars rather than helicopters. They share their purpose. They help in cooking, water supply, cooling, heating, farming, and personal travel. These are technologies of daily life and care, and they do not serve export industry or war. Ladyland's lacking are also very important. The railway and the paved road were typical tools of colonial power. Headrick (1988) places them among the *"tentacles of progress"* through which empires used to transit goods, troops, and taxes. Ladyland's refusal of them is a refusal of the colonial state of railways and roads that Chesney helped to staff.

We should not mistake Ladyland for a modern green, nature-loving paradise. Sister Sara admits they push nature to produce as much as possible, and the Queen aims to reshape the whole nation into a giant garden. Rather than leaving nature wild, it's a dream of total control where humans even dictate the weather. Its closest match is the wish to control water that, as Amrith (2018) shows, inspired both colonial and nationalist planners in monsoon Asia. What makes Ladyland different is who holds the control and why. Women hold it, they use it to provide comfort and enough for everyone, and it runs on solar energy instead of coal.

The Solar Weapon and the Invasion Plot

The history that Sister Sara tells takes the form of an invasion story. At a council of women, the Queen says that if they cannot save the country by physical strength, they must "try to do so by brain power" (Hossain, 1905). Placed beside *The Battle of Dorking*, the episode of defeating the invaders can be read as a rewriting of the invasion plot's central device. In both stories, one new technology decides a war almost at once. Chesney's (1871) fatal engines are secret, hostile, and deadly, and they begin the conquest of Britain. Hossain's (1905) solar collector is a peaceful energy technology used to generation and defense. Chesney wrote about invasion to glorify military men, but Hossain turns that exact fear around to completely destroy the idea of male soldierly pride. The officers' mocking phrase, "a sentimental nightmare," returns to describe their own fate. Atanu Bhattacharya and Preet Hiradhar (2019) see this phrase as the key to the story's attack on male state violence. They read Ladyland as a state founded on reason and beauty rather than on force.

Ladyland's peace comes with clear boundaries, and an honest reading has to acknowledge them. The solar collector can still be used as a weapon. In fact, Ladyland stays safe because it holds unstoppable technological power—as Sister Sara notes, no one has dared to invade since they showed what their tech could do. Like most satirical utopias, Hossain built her dream world using the very tools of the society she was mocking. These limitations are important, but they should not overshadow the story's deeper political message against colonial rule

Purdah as a Political Allegory

The story's first target is Indian patriarchy, and it names Indian men directly. Yet the story can also be read on a second level of interpretation, as an allegory of colonial rule. Colonial thinking in Bengal was strongly shaped by ideas of gender. As Mrinalini Sinha (1995) has shown, late nineteenth-century British writers presented themselves as the "manly Englishman" and presented educated Bengali men as "effeminate." This image was used to argue that Bengalis were unfit to govern themselves. Hossain's story turns this order upside down. In Ladyland, "*mannish"* means "shy and timid," and the group that was kept indoors proves wiser and more capable than its rulers.

Seen from our angle, the men of Ladyland stand for the colonial rulers of India. They rule by force, they trust weapons over knowledge, and they mock the research of the people they restrict. The women in the zenana stand for the colonized. They are not allowed to practise power, yet they prove themselves more intelligent and more capable when they are free to take actions. The story then becomes a message to Indian patriots. This study agrees with Kuiti's (2022) argument that Hossain asked about the prospect of the colonized women.

The comparison is not perfect, though, and we should not take it too far. The men in Hossain's frame story are Indian men, and her frustration with them is genuine. If we treat these men as mere stand-ins for the British, we miss her critique of Indian patriarchy, which was her primary goal. A stronger interpretation honors both layers: Indian women of her era were ruled by two powers

at once—the colonial state and the men in their own communities. This dual critique is what makes Sultana's Dream the boldest text in our study. In the end, the story doesn't just question political rule; it attacks imperial wealth and the economic system itself.

The Koh-I-Noor and Wealth without Plunder

The Queens's examples are carefully chosen. The Peacock Throne of the Mughal emperors was carried off by the Persian ruler Nader Shah after he sacked Delhi in 1739. The Koh-i-Noor diamond passed to the East India Company after Britain took over the Punjab in 1849, and it was presented to Queen Victoria in 1850 (Dalrymple & Anand, 2017). When Hossain wrote, the most famous diamond in the world was a British crown jewel. To refuse to "*fight for a piece of diamond*" brighter than the Koh-i-Noor was, in 1905, to refuse the logic by which the British Crown had gained it. The words "*We do not covet other people's land"* reject the taking of territory in a single rule. The passage then changes the meaning of wealth. The *"precious gems"* worth seeking lie in "*the ocean of knowledge.*" Knowledge takes the place of plunder as the source of value.

The passage gains even more force if set against Chesney's closing lament. Chesney's narrator admitted that British wealth "*was not created in the country, but in India and China,*" and that British power depended on coal and iron that people assumed would never run out (Chesney, 1871). Hossain's Ladyland shows "*no sign of coal or fire*," wants no one's land, and builds its wealth on knowledge and the renewable energy sources. The two texts answer the same question in opposite ways. Chesney's answer is colonies and coal, defended by arms. Hossain's answer is sunlight, water, and education, defended by a weapon that kills no one. Dipesh Chakrabarty (2009) and Amitav Ghosh (2016) have argued that modern thought and literature have struggled to imagine the planetary effects of a world powered by fossil fuels. We do not claim Hossain as a foreteller of climate politics. It's interesting that a clear vision of a world without coal came early from someone living under British rule—a female writer who got zero benefits from the coal power that ran the empire.

Time, Work, and the Kitchen as Laboratory

In Ladyland, technology is designed to make life easier and save time. Sister Sara works only two hours a day. When Sultana mentions that judges in her world work seven hours a day, Sister Sara laughs, and says that men waste most of their time smoking. She points out that if a man smokes twelve cigars a day—taking half an hour for each—he loses six full hours just on smoking! Since Rokeya Sakhawat Hossain's own husband was a government magistrate, this clever joke pokes direct fun at British officials.

Thanks to time-saving inventions like solar cooking and electric farming, people in Ladyland have extra free time for embroidery, reading, and scientific research.

The story ends suddenly: as Sultana is flying out of Ladyland in an air-car, she slips, wakes up, and realizes she is back in her chair at home. Her dream shows the huge contrast between this perfect imaginary world and the real world under British rule—a gap Hossain spent the rest of her life trying to close. Now, by looking at all three texts, we can compare them side by side.

Comparing The Three Texts

How Birthplace Shaped The View Of Colonial Authority

These three writers show different views on British colonial rule, because of their backgrounds. Chesney was born in England, and spent his career working within the colonial system as a soldier, engineer, accountant, and teacher. On the other hand, Bose and Hossain were Bengalis born in India representing the colonized people. All mentions writers had a close view of British authority—Bose's father and Hossain's husband both served as local deputy magistrates—but they never experienced that power. Their own struggles were different: as an Indian man, Bose directly faced the racial discrimination of the British scientific community, while As a Muslim woman, Hossain was fighting against two things at once: British rule and male dominance in her own society. Because she had to deal with both, her criticism of power was much deeper and sharper than Bose's.

Chesney's text reflects the colonizer's point of view. It is a serious warning in order to make Britain stronger, criticizing the government and media for not being prepared. Yet it never questions Britain's right to rule India. On the other hand, Bose and Hossain, rely on satire. Satire gives weak or powerless people a way to resist those in charge just by laughing at them. When it mocks useless lectures, lazy officials, and outdated gender roles, it strips away their power and makes them seem foolish rather than threatening. This gives their stories a distinct advantage over Chesney's: while Chesney can only criticize the empire from within its own rules, Bose and Hossain step completely outside the frame and laugh at it.

A Shared Plot of Failed Authority

Despite these differences, the three texts share a plot. In each one, the power that claims technical superiority fails. In *The Battle of Dorking*, British technology is weaker than that of the German-speaking enemy, whose secret weapons sink the British fleet in minutes. In "Runaway Cyclone," the colonial weather service cannot predict or explain the storm, and the scientists of Europe produce only nonsense, while an Indian-made hair oil does the work. In "Sultana's Dream," the ruling men and their army fail, while the confined women's science saves the country. If we accept the allegorical reading above, Hossain's failed rulers also stand for the colonial state. Analyzed from a single perspective, British and Indian speculative fiction of this period both show British or ruling power as technically weaker than it claims to be.

What differs is the meaning of that failure, and here the

writers' positions matter most. For Chesney, British failure is an error to be fixed. The solution suggests to spend more, train better, and use better weapons, so that Britain wins the next technology race and may keep its empire. For Bose and Hossain, the rulers' failure is evidence. It shows that the claim to rule through superior knowledge is a false discourse, and it suggests that the colonized people already hold the knowledge that are essential. Chesney wants Britain to win the race, while Bose and Hossain question the race itself. Table 2 summarizes these differences, along with the others discussed so far.

Table 2: The three texts compared

Point of comparison	*The Battle of Dorking* **(1871)**	**"Niruddesher Kahini" / "**Palatak Tufan*"* **(1896 / 1921)**	**"Sultana's Dream" (1905)**
Where published, and in what language	Blackwood's Edinburgh Magazine, in English	Kuntaline story contest (1896) and Abyakta (1921), first in Bengali and English, then in Bengali only	The Indian Ladies' Magazine, Madras, in English
Author's birthplace and position	Born in Tiverton, England. British military engineer and colonial administrator	Born in Mymensingh, Bengal. Indian physicist in a colonial college	Born in Pairaband, Bengal. Bengali Muslim woman reformer, largely self-taught
Key technology	Secret naval "fatal engines"	A bottle of hair oil that calms the sea	Solar-heat collector and water balloon
Who holds it	A rival European power	A sick Bengali traveler, through his daughter's care	Women scientists of two universities
Material and energy base	Coal, iron, and colonial wealth	An Indian-made product for sale	Sunlight, water from the air, and electricity
Relation to violence	Destruction, conquest, and occupation	Accidental rescue of a ship and a city	Bloodless defense, with no conquest
Whose authority fails	British technology, against a German-speaking enemy	Colonial weather science and European scientists	The ruling men and their army (and, read as allegory, colonial rule)
Meaning of that failure	An error to fix with more arms	Proof that colonial science cannot see Indian knowledge	Proof that the confined are fit to rule
Main mode	Fearful warning	Satire, joined to myth in 1921	Satirical utopia
View of empire	Loss of empire as a national tragedy	Empire as an authority that cannot know	Open refusal of conquest and plunder

Where Technology Lives and What it does

Three further patterns stand out. The first deals with scale and place. Chesney's technology belongs to the arsenal and the dockyard, and it works at the scale of the state. Bose's and Hossain's technologies belong to a family's luggage and a kitchen garden. In Bose's story, the rescue comes through a daughter's care, and in Hossain's, the most advanced technology on display is a kitchen. History offers a parallel. In the same years, Agnes Pockels, whose kitchen experiments on oil films Rayleigh brought to Nature in 1891, showed that the home could be a real site of women's science (Pockels, 1891). Moving technology from the arsenal to the home is itself a political act. It takes technical power out of the areas that the empire claimed for itself, heavy industry and war, and places it in areas seen as domestic, commercial, or female, where colonized men and women could claim expertise. Suchitra Mathur's (2004) study of third-world women and the politics of science places "Sultana's Dream*"* at the start of a longer Indian tradition of this kind.

The second pattern has concerns regarding institutions. Writing against empire does not always mean rejecting institutions. Chesney's story asks the state to act. Bose's satire attacks the institutions of colonial and European science, from the Alipore observatory to the British Association. On the other hand, Hossain's utopia is full of institutions, since its change is made by women's universities that the state supports and Lady Principals lead. These stories accept organized knowledge, and they ask who organizes it and for whom. The third pattern is related to violence. For Chesney, technology is the means and the measure of war. For Bose, it is an accidental means of rescue that saves a ship's passengers and a city that includes its rulers. For Hossain, it is a defense that defeats an invader without killing. In both colonial stories, technical skill is separated from conquest, which is the second of our three tests.

The Limits of Their Challenge to Empire

The challenge these stories make to empire also has clear limits. Neither of the texts shows an open revolt against British rule. Hossain comes closest, through the allegory

discussed above, but she never names the British as the enemy. In this, both writers differ from earlier English-language speculative writing in India. The challenge of Bose and Hossain works through knowledge and economics instead. It questions who can know nature and what wealth is, more than it should ask who governs India. Their visions are also shaped by class. Sultana is a woman of a household with servants, Bose's narrator is an educated traveler on a passenger steamer, and the Kuntaline story advertises a branded product. These are the visions of a colonial educated class, and their challenge to empire is linked to that class's own claim to modernity. Partha Chatterjee (1993) argues that Indian nationalism divided life into a material sphere, where it accepted and copied Western superiority, and a spiritual and domestic sphere, which it claimed as its own. These limits do not reduce the stories' importance for a larger question, which is how the history of science fiction should be written.

Rethinking the History of Science Fiction

Our readings first confirm a simple point. Speculative fiction in colonial Bengal developed at the same time as the British scientific romance, and it did not just copy it. Bose's story appeared a year before Wells began to publish The War of the Worlds in a magazine in 1897 (Wells, 1898), and Hossain's utopia came a decade before Charlotte Perkins Gilman's Herland (1915). Both belong to a longer Indian tradition that Gibson (2019) traces back to 1835 and that includes Jagadananda Ray's Bengali story "*Voyage to Venus*" (1895), recently translated by Chattopadhyay (2024).

Looking at dates alone doesn't prove much. Arguments about who came first repeat the logic of Chesney's race, in which value belongs to whoever arrives first with the better invention. The more important point concerns exchange. All three texts were written within one unequal world of print. Chesney's story spread through Blackwood's, cheap reprints, and translations (Clarke, 1965; Kirkwood, 2012). Across its two versions, Bose's story names Nature, the British Association, Reuters, the Times, Scientific American, and British-run Indian dailies such as the Englishman, the Pioneer, and the Statesman (Bose, 1896/2013). Hossain's utopia appeared in an English-language magazine read by Indian women across the subcontinent (Bagchi, 2005). The colonial writers did not simply receive British forms. They quoted them, mocked them, and reused them, and in doing so they helped decide what science fiction could become.

Chattopadhyay (2013d) calls for an understanding of science fiction that is not centered on the English-speaking world, and with Banerjee's (2020) account of Indian science fiction as a space of cultural mixing. The invasion plot, the secret weapon, and the scientific explanation were shared tools. What changed from text to text was the answer to one question, which was who should hold technical power and for what purpose.

Our approach also opens up new paths for future research. The Kuntaline contest ran for many years and attracted entries from leading Bengali writers, so its archives could reveal how advertising and science fiction grew up together in colonial Calcutta. Additionally, as far as we know, no one has yet done a detailed study on how the British-run and Indian newspapers in India reacted to British invasion stories. Finally, we could apply Davies's approach—reading colonial literature through its physical networks like railways and telegraph lines—to examine how these speculative stories mock or reject structures like train systems and observatories.

CONCLUSION

The Battle of Dorking, "Niruddesher Kahini" and its revision, and "Sultana's Dream" were not written in conversation with one another in any recorded sense. hen read together, these works show how people on both sides of the empire fought over what technology really meant at the turn of the twentieth century. Chesney, an English-born colonial engineer, imagined technology as weapons resting on coal and colonial wealth, and his nightmare was that Britain might be taxed and ruled as it taxed and ruled others. Bose, a Bengali physicist, imagined a cyclone defeated by a child's bottle of hair oil. He used the story to show that colonial and European science could not recognize the knowledge of the colonized, and his revision then carried that knowledge from the English of scientific reports into Bengali and myth. Hossain, a largely self-taught Muslim woman writing in English, imagined a coal-free solar nation run by women scientists. Her Ladyland defeats an invader without bloodshed, refuses the plunder that the Koh-i-Noor stands for, and can be read as a lesson to nationalists that freedom must include women.

All three texts show the ruling power failing at technology. Only the Bengali colonial writers turn that technological failure into a question about the right to rule—and they are the only ones who use satire to do so. Their stories pass our three tests to varying degrees: their technologies belong to people the empire dismissed as incapable, they function without needing conquest or resource extraction, and they challenge the authority of colonial science.

Their critique has limits regarding scope and class, and we read these texts from our own perspective as scholars from a formerly colonized nation—an idea that comes with its own insights and potential biases. Yet within those limits, the Bengali stories achieve something the British invasion story never could. While Chesney could only imagine the end of the empire as a disastrous collapse, Bose and Hossain imagined modern technology thriving without the empire at all. In doing so, they turned colonial Bengal into a place where the future of science and science fiction was actively being created.

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