



# UNTOLD SAGA OF THE STRUGGLE FOR SWATANTRATA THROUGH SCIENCE

Time is ripe to awaken the country towards the struggle and audacious scientific ventures of Indian scientists that helped in the creation of national impulse to achieve *swatantrata*



■ Jayant Sahasrabudhe

**T** (there was) a need for national self-expression — to show the West that, in all realms including science, Indians were equals’ — this was the reply of legendary astrophysicist and Noble laureate Dr S Chandrasekhar when he was asked: ‘Why was there a sudden surge of modern scientists of international repute in the first three decades of 20th century in India?’ This reply, on one hand, reflects the discriminatory and hegemonic tendency of the West (the British) against the Indians, and, on the other, it precisely captures and highlights the patriotic spirit of those world-class scientists who squarely challenged the oppres-

sive colonial power as the warriors of struggle to attain *swatantrata* (स्वतंत्रता).

In spite of this reality, is it not a surprise that we as a society are yet to acknowledge and perceive scientists as warriors of the struggle for *swatantrata*? In fact, there is enough and detailed information available on the pages of history about how ‘science’ was utilised as a potent tool to establish and consolidate exploitative British rule in India; how the oppressive and discriminatory measures were exercised by colonial rulers against Indians in the scientific domain; and, most importantly, there are inspirational accounts of

An artist's impression of the victory of the East India Company at the Battle of Plassey on June 23, 1757, that laid the foundation of British rule in India



Image Courtesy: Wikimedia Commons

the struggle as to how those repressive measures were challenged and how the counterattack emerged in an intelligent manner. Now, the time is ripe to make earnest efforts to explore the struggle that was carried out in the domain of science and awaken the people by telling hitherto untold stories of audacious scientific ventures that could create impulse in the hearts of fellow Indians to achieve *swatantrata*.

The auspicious dawn of 'Swatantrata' arrived with dazzling sunlight on the horizon of our motherland on that historic day — the 15th of August, 1947. Bharatmata (भारतमाता) became free from the clutches of oppressive foreign rule on this momentous day. The bondage of centuries came to an end as the dark night of servitude slipped into the past. It was a matchless moment of joy and pride. Now, after completing 74 years of *swatantrata*, we are all geared up to celebrate the 'Swatantrata ka Amritmahotsav' (स्वतंत्रता का अमृतमहोत्सव), the 75th year of *swatantrata*, which has begun from August 15, 2021, the 75th anniversary of liberation.

### THE VISION OF INDIA'S ENLIGHTENED SOULS

The long awaited Swatantrata, a cherished dream of several generations, was a fruition of great struggle. This struggle

has been marked as a unique saga of indomitable courage, unparalleled sacrifice and extraordinary valour of unyielding men and women in the annals of our history. We owe a lot to them. Therefore, one of the main objectives of the celebration of the 75th year of Swatantrata is to remember them and pay humble tributes to these heroes of the struggle.

These resolute heroes of the struggle were not mere warriors, but were enlightened souls. They carried the eternal message of their hallowed land, they upheld the dignity of the noblest and oldest living culture and civilization of the world when it was under hateful attack. And, while challenging and countering the arrogant attack, they envisioned a glorious picture of their motherland — brighter, greater and mightier than she ever was. This vision evolved through the intense churning of thoughts and deep contemplation in the course of struggle. Swatantrata ka Amritmahotsav gives us the right opportunity to revisit and restudy the astounding struggle and understand the profound meaning of that brilliant vision. It is essential to refresh and reset our perceptions about the historic struggle. This exercise is critically important not just in today's context, but more significantly in the context of our country's future.

From early times in the world, our country was highly

regarded as a land of magnificent promise, a land of great fortune, because of its treasure of brilliant knowledge and matchless affluence. Genuine knowledge seekers from around the world used to visit India in search of truth. However, greedy and power-hungry eyes from across the world always had a villainous desire to rule this land. Such evil forces repeatedly attacked our land, and eventually, could penetrate the bulwark a few centuries ago. These forces pushed the entire country into the state of subjugation by assuming power.

### NOVELTY OF BRITISH EXPANSION IN INDIA

It has been observed in the course of history that there are three main motives that spurred the invasions — a demonic desire to rule, a brutal frenzy to spread self-religion and culture through its forceful imposition, and the acquisition of wealth through ruthless plunder. Out of several invaders who attacked India, the last one — the British, too had similar goals. However, compared to previous invaders, the British had distinctly unconventional schemes, methods and tools to realise these goals. The distinctness and unconventionality of tools or methods was due to the newly born ‘science’ in England. The expansion and consolidation of British rule, first by the East India Company and later by the British crown, was achieved by exercising ‘science’. Surpassing all bounds of previous invasions, in terms of magnitude and consequences, the British invasion turned out to be the most devastating, patently because of ‘science’.

The British rule in India began with their victory against the Nawab of Bengal at Plassey, in June 1757. The beginning of the first industrial revolution in England around 1760 coincided with this episode. East India Company earned enormous money through its newly gained stately authority in Bengal. Evidently, that money was utilised as a crucial capital to foster the industrial revolution.

Another essential factor for the growth of industries is natural resources.

Without losing much time, the Company established the Survey of India in 1767 to explore and map the natural riches of Indian territory in a scientific manner. The science was thus administered for the first time to plunder India’s natural wealth. It has been established today that Britain stole around worth \$45 trillion from India during its rule of 190 years.

### AIM TO OBLITERATE INDIAN IDENTITY

But, acquisition of wealth was not the sole aim of the British Empire. *The Oxford History of the British Empire* has explicitly described the other ‘higher’ aim. In the introduction of its fifth volume, the editor-in-chief Wm. Roger Louis writes, ‘Macaulay held arrogant but representative views on England’s cultural ascendancy in the world and what he believed to be the benevolent impact of British rule in India and elsewhere. The controversial Minute on Education, written in India in 1835, managed to reconcile British realpolitik and idealism in a way that left a lasting mark on subsequent interpretations of British rule: ‘It is impossible for us, with our limited means, to attempt to educate the body of the people. We must at present do our best to form a class who may be interpreters

between us and the millions whom we govern; a class of persons, Indian in blood and colour, but English in taste, in opinions, in morals, and in intellect.’ It is crystal clear that the ‘higher’ aim was to obliterate the Indian identity and replace that with British ideas and ideals. This was an attack on the very identity, i.e., ‘*swa*’ of the nation. The most effective tool to achieve this ‘higher’ goal, obviously, was ‘science’.

British rulers used to claim cultural, civilizational, intellectual and racial ‘superiority’, because of the phenomenal success in the development of reason-based science and technology. The claim of ‘superiority’ gets justified unquestionably when one puts a tag of ‘inferiority’ on the conquered people. Colonisers started defacing Indians as irrational, uncivilized people completely immersed in the pool of weird superstitions. The foul play of colonisers based on ‘science’ has been exposed by renowned scholar Ashish Nandy. He writes, ‘The reader may remember popular anecdotes about colonial adventurers, or scientifically-minded explorers who sometimes scared off or impressed the natives of Asia and Africa with new forms

of black magic based on the discoveries of modern science. The civilizing mission of colonialism thrived on this folklore of encounter between western science and savage superstitions. But in each such instance, it was science that was put to the use of the colonial state; the state was not put to the use of science.’ It was a serious attempt of British rulers to conquer the ‘*swa*’ of India by using ‘science’. This was a life-threatening attack. Indians were shaken to the core. It was



A painting of JC Bose by one of modern India’s most well-known artists, Bikash Bhattacharjee (1940 - 2006)

**East India Company earned enormous money through its newly gained stately authority in Bengal. Evidently, that money was utilised as a crucial capital to foster the industrial revolution.**

Image Courtesy: Birla Academy of Art and Culture

an existential crisis indeed and all geared up to take on this unprecedented challenge.

### CHALLENGING BRITISH INTELLECTUAL HEGEMONY

It was the domain of science from where the conch was blown to challenge the British intellectual hegemony. Dr Mahendralal Sircar, a successful medical practitioner and a science enthusiast with brilliant scholarship, having experienced the bitter hegemonic attitude of the adherents of western science, rose against the sheer injustice and pledged to establish a *swadeshi* scientific institution. With the help of munificent fellow Indians, he established the Indian Association for the Cultivation of Science (IACS) in 1876, which was 'solely native and purely national'. He had a conviction that 'science' is the instrument for national reconstruction and envisioned a glorious India through an indigenously developed science. It was a beginning of science movement with a *swadeshi* spirit that stirred up genius young minds. Through this institution emerged the generations of young Indian scientists who made imprints in the history of modern science with world class scientific discoveries and successfully contested the British scientific hegemony. One brightest star among the patriotic scientists who sprang up from IACS was Dr CV Raman, a first 'non-white' scientist who won a Nobel Prize in 1930 for

**It was the domain of science from where the conch was blown to challenge the British intellectual hegemony**

a seminal contribution in the advancement of modern science.

Acharya Jagadis Chandra Bose, well known as the first Indian scientist of the modern era, displayed amazing Indian intellectual capabilities to the world, especially to the West. As a patriot, he did a first '*satyagraha*' (सत्याग्रह). Upon his return to India from England (1884), after completing his studies in Physics with high distinction, he was willing to teach Physics. Here he confronted injustice and racial discrimination inflicted by the British rule, under which the Education service was practically segregated into two distinct racial camps — Imperial Service for the British and the Provincial Service for Indians, having the very same duties and responsibilities, but with much lower pay. (Indian professor's income was two-thirds of a European's) Though Bose was appointed as an officiating Professor through Imperial Service (due to the influence of Governor General Lord Ripon who acknowledged his talent) at Presidency College, its principal protested against this appointment on the grounds that Indians have no aptitude for the exact methods of science. After entering on his duties, Bose found that this two-thirds pay was to be further reduced by one half, since his appointment was only officiating. In other words, he was to get one-third of the normal pay. Refus-

**The building of Bengal Chemicals and Pharmaceutical Works Ltd., the country's first indigenous science-based industry**



Image Courtesy: Internet

ing to submit to this oppression, Bose initiated a struggle with protest, a *satyagraha*. His biographer Geddes says: 'From the first he was very clear as to his course — that of performing all that could be asked from him and more; but at the same time he resolved to do all in his power throughout his career towards raising the status of Indian professors. With this combination of personal pride with loyalty to his countrymen and colleagues, he decided on a new form of protest, and maintained it with unprecedented definiteness and pertinacity. ..., he resolved never to touch the cheque received by him monthly as his pay; and continued this for three years'. British authorities yielded before this determined nonviolent resistance and Bose succeeded in getting this distinction abolished.

Further, he took up the task of doing scientific research when British policies were uncondusive for the same. But adversities could never arrest his scientific productivity, instead provoked his talent and consolidated his resolve. In 1895, he made a groundbreaking discovery through which he pioneered wireless communication in the history of modern science.



Lord Kelvin, the doyen of modern science, was overwhelmed with Bose's success. Bose had no desire to achieve scientific success for his personal gratification, but struggled to win for his countrymen recognition of their capacity for science. He cherished a dream of establishing an institute for Science essential for the modern revival of the ancient scientific tradition of India. His vision was to bring back that lost reverence to his motherland by generating knowledge through scientific research. Bose, a first non-white scientist who created radiant imprints in the domain of modern science, was driven with a nationalistic spirit.

Another illustrious scientist, who was a close friend of Bose and put his heart in the nationalistic pursuit of science to regain the lost status as an intellectual leader of the world to his country, was Acharya Prafulla Chandra Ray. To raise the diminishing spirit of Indians he wrote the book, *History of Hindu Chemistry* highlighting the remarkable development of chemistry in India from early times and how it has contributed

**Paying tributes to these science warriors will be meaningful if we could imbibe their spirit and understand their dream about *swatantra* Bharat**

to the development of modern chemistry. In a similar vein, to cultivate self-confidence in the hearts of countrymen to achieve self-reliance, he successfully established a first science-based *swadeshi* industry, the Bengal Chemical and Pharmaceutical Works, in 1901. He said once, 'no political renaissance is possible without the full development of the intellectual (scientific) and industrial resources of the country.' Alongside, he assisted revolutionaries in preparing explosives. So, the British administration literally recorded his name as a

'revolutionary in the garb of a scientist'.

Along with Dr Mahendralal Sircar, JC Bose and PC Ray, the galaxy of leading lights of Indian science initiated a vigorous and creative struggle in the domain of science to achieve *swatantrata*. It is extremely difficult to estimate their awesome contributions. The sheer immensity of their offerings suggests that by all means they will be remembered as the epoch-makers in *swatantra* Bharat, as they laid the foundation for the development and progress of science to be utilised for national resurrection and reconstruction.

Paying tributes to these science warriors will be truly meaningful and fruitful if we could imbibe their spirit and understand their dream about *swatantra* Bharat, and take pledge to make ourselves worthy to walk that spirit and strive hard to realise their dream.

*\*The writer is Chief Editorial Advisor, Science India*



Image Courtesy: Internet

Acharya PC Ray (sitting, centre) with fellow scientists