

Of Science and Tagore's Songs

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INDEPENDENCE OF A COUNTRY needs not only political but also a scientific culture in order to launch industrial initiatives to rebuild a nation sucked by colonial plunder causing over-all poverty more of the mass and downtrodden. Progress of Development Economics and appropriate Science & Technology innovation is walking on two legs most evident in China becoming the most flourishing industrial nation in post-liberation reconstruction of their industrial economy, ravaged by several colonial powers, even though their post-Mao modus operandi is questionable as a Communist country, so far exposed in media, being not compatible with communist principle of rule of the proletariat, justifying by Deng Zio Ping after demise of Mao Ze Dong becoming top leader that the colour of cat is not to be considered till it can catch mouse which is imparting endorsement of capitalist development though still declaring theirs is a Communist Economy, while the party bosses and their sons, daughters are making billions in their ownership of private capitalist enterprises. Employment of child labour and pre-adult women in China are against basic principles of Human Rights at incredibly low wages and adverse living conditions. But exploiting their own people at a higher rate than serf labour even inconceivable in Capitalist countries, their economy is enjoying a sustained economic growth amidst global economic downslide precipitating further like approaching a black hole. Money is honey in China today infested with the prowess of ruthless labour exploiting Capitalist development with gigantic innovations in science and technology. But despite all odds science & technology have developed raising quality and productivity.

Rabindranath involved in nationalist politics with his perspective of a liberated nation was aware that Indian independence struggle would necessitate along with nationalist politics of mass consciousness in Science and Technology in order to reconstruct the ruined economy to move along the highway of fast development. His contrary view of the futility of the Gandhian Spindle as a utopian retroactive science and technology model in the era of fast growth of high potential industry model based on steam engine and subsequent arrival of thermal generation of electricity based on steam engine spread over all streams of modern industries in the west was well known to this dynamic holistic philosopher though popularly known as poet and lyricist.

His contribution to Indian independence was active politics along with all avenues of popular culture predominantly literature which he also used as to induct science awareness. Song being the most popular and economic form of mass entertainment, Rabindranath used his musical talent to convey modern Science to the maximum common people. After 150 years of his birth still his songs, now called Rabindrasangit, is most popular music among not only Bengalis but also among other Indians both in India and abroad which had been entertaining and subtly encouraging science consciousness penetrating among the mass of music listeners.

In nineteenth century—the golden era of Indian History, a large number of great world class talents were born in India in the fields of science, humanities, religion, literature, music and other subjects in mainstream as well beyond mainstream, that coincident phenomenon can be compared only with the eighth and ninth century Greece which was the birthplace of a large number of intellectual giants within a concurrent period of embryonic origin of the excellence of western knowledge of science, arts and humanities and their predominant growth leading to Industrial Revolution at first in the West. Film director Sri Goutam Ghosh highlighted this exceptional phenomenon in a deliberation on his bio-pic of Lalan Fakir, the legendary lyricist and most progressive folk ‘Baul’ school of singer elevative to confluence of all religious castes, emancipating and dynamically assimilative music born at this particular period of prejudiced because of caste infested people of Bengal as steeped in religious fundamentalism. Religion at the time of Lalan was very conservative serving the rulers’ vested interest in desired ‘divide and rule’ axiom practiced invariably everywhere in a cunning varieties upheld as much required to rule.

Karl Marx pointed out the British invasion and colonisation of India as a historic determinism. British Knowledge as a Flint-Stone ignited the nearly fossilised Indian ancient philosophy gone into oblivion save and except in private schools (Toll)and University Degree course on Sanskrit studies which kept study of Veda and Upanishada in its academic curriculum along with other repository of ancient Indian discourses. Astrology most often devoid of scholarly wisdom was alive for commercial interest of exploiting prejudiced people by omnipresent.

Astrologers and palmists and later composing printed annual native Indian Almanac (*Panjika*), the only book of use round the year having utility in birth, death and marriage as well as all Hindu festivals in hand-composed Bengali press as was introduced by a monk William Kerry in India in Srirampur Christian Missionaries very soon after invention of printing press by Gutenberg in Germany. Publication of mass printed books ushered a paradigm change in reading culture in India like all over the earth. It was like a flame lighting hundreds and thousands of flame.

With due respect to the controversial applicability of the term *Renaissance*, it can still be called a stellar constellation for coincidental birth of so many World class talented luminaries in a country. Among the most distinguished Indians of that age, undoubtedly Rabindranath Tagore was by far the most talented multifaceted patriotic creative intellectual.

Rabindranath was most impressed by ‘Upanishad’ as well ; he also almost read over ancient repositories of Indology of much early civilised India. That is why he welcomed the Western modern books of knowledge and wrote in a verse ‘Give and take, undergo assimilation and at the same time get enriched by the symbiosis of arts and science in the domain of enlightened humanities for creative adaptation and make expression in his art and literature’. So he wrote in ‘Gitanjali’—anthology of song offerings that was awarded 1st Nobel prize literature in Asia, in order to enlighten soul ‘Where the mind is led forward by thee into ever-widening thought and action’.

This successful attempt of assimilation was of culture of East and West, fused elegantly in his literature, music, drawing and other performing arts. Rabindranath himself said, 'whatever I have done may be going into oblivion but my songs will win hearts of people against flow of time. It will keep my memory glowing bright'. So one should judge a creator by his best creation.

Rabindranath was a discerning reader of western science and technology. He had annual membership of 'Scientific American' published from USA, the study of which obviously had spread over his songs and other creations. A large number of his lyrics were dedicated to light. Critical factor of sunlight and function of optics (Light science) has created life on earth. It may hence be his desire to popularise the science of optics through popular media like songs. It was because light is the most active natural force for life. One of his very popular songs ('Gitabitan' song number 46, published in month of Vada 1345 in Bengali calendar) had lessons on optics in line by line, in order to explain forces of nature, light in particular. The song started with the line 'Light, oh my light, you are spread over the earth'. In the sixth line the poet sublimates the new born cloud which is in the colour of glowing milk white, is described by the language of poetic science, 'Thousand butterflies have winged over the stream of light, just like the way animal butterflies wing over stream of air' (*Translated by the author*).

In the seventh line, the poet expresses the delight of plants in its friendship with light. The waves of sunlight make the Jasmine flowers euphuistic. Because plant prepares its food by Photosynthesis, when sunlight falls on them. Every animal has some basic instincts—eat to survive and then grow itself to its full potential as opposed to the inanimate which does not grow for organic intrinsic reason. Next one is to give birth to next generation in most cases sexually. The sunlight grows every plant, blooms its flowers which are having seeds in them. The primitive method of fertilisation of seed is dissemination of pollen through attractive colour, fragrance and sweet honey of flower alluring insects and birds to sit on it when sticky pollens get attached to their bodies. Mostly butterflies and other insects like honey bee & wasp, small honey sucking birds and the human being collect the flowers for regular religious acts as well to decorate own body, female hair in particular and their homes for its beauty and fragrance. Marriage and worship essentially need flowers with fragrance. Exchange of flower garlands is itself a sufficient ritual of socially sanctioned marriage ritual in some aboriginal religions, maybe because even primitively civilised man gradually learning the science of agriculture came to know that blooming flower initiates the procedure of reproduction through male-female pollens getting together.

In animal world, the vital source of life is plant since it only can generate Oxygen essential for life. Initially the light helps to grow and spread away the plant population. The entire earth gets covered by forests with plants suitable to the local environment. It was poet Rabindranath who first organised and started the day of festival of trees in a sublimated ritual in India. The event later spread across the world. Much decades thereafter, the principal reason of global warming is deforestation of earth for expanding civilisation and it is now most accepted truth. The articulated cost that is paid for pursuing of misconceived uneco-friendly western model of

growth leading to global warming by destroying hills, rivers as well the massive destruction of plants populating the forests which alone have the unique property of conversion of Carbon Dioxide into Oxygen that has brought and nourished life on earth. In the eighth line of the same verse, the poet with the scientific consciousness had written 'the gold-spots in the clouds are beyond counting', that means since gold that is valued by mankind as the most cherished and desired metal forever in every country, the poet symbolised the light of thunder falling on raindrops appearing as gold and jewels. Those countless jewels falling as raindrops enrich life on earth. This natural Nitrogen enriched in raindrops nourishes the plants and hence are as valuable as jewels if not more.

In the ninth line, the poet wrote, 'Leaves are smiling, joy abounds'. Best friends of plants which are Sun and rain have come. So plants are smiling. Light has initiated Photosynthesis, food processing in plants has started, rain is filling the thirst of all animals at the same time.

Here it must be mentioned that world famous scientist professor Jagadish Chandra Bose was an intimate friend of Rabindranath. Under his inspiration a large number of eminent short stories were regularly born. The scientist under invitation made it a condition that, whenever he would visit the home of the poet, a new short story must be read out. Thus Bose prominently patronised Bengali literature by virtue of that friendship. Subsequently for financing the foundation of 'Basu Bigyan Mandir' (which later was renamed as 'Bose Institute'—a status of internationally famous research laboratory), poet Rabindranath stood by his friend by raising funds by widely performing song and dance in near and far away places.

Hence a Botanist who had proved plant as a complete animal, proved the capacity of feelings of joy and sorrow of plants alike other animals visible to man, applied successfully his knowledge of Physics in order to identify the conclusive manifestation of a living being in plant, it was obvious that Rabindranath certainly had learned these directly from horse mouth who was his intimate scientist friend. Hence Rabindranath finds the expression of euphoria in the leaves of plants when the sun shines and falls on plants.

In the tenth line of the same verse the poet concludes in his words, 'Both banks of the river of nectar has been submerged by incessant drops of nectar'. Nectar is an invigorating drink which gives man salvation. The sky covering cloud which is the source of water, the poet calls it a heavenly stream of nectar. While the water flows down as falls over the mountains, and the falls go down the hills to fill up the rivers, when that water-drops fall on plants and other animals as rain of nectar, the poet had preached here, that all these are blessings of light of Sun. Because it is sunlight that evaporates surface water on earth and forms the clouds in sky in the cycle of fresh water formation on earth.

Then there is a song in 'Gitabitan' that narrates—'clean me in the spring of light'. The poet here has metamorphosed the light as magic stick of gold which fills his mind with ecstasy. He has described the radiation of sunshine as spring of light as normally spring flows from up to down. It does not flow like river, surfs like scaring waves of ocean. Light is a very organised energy, which moves in a straight line, saves animals, destroys a large number of fatal

microbes. A germfree healthy body is joyful. Hence light is a source of ecstasy. The poet has honoured the light as the source of delight for the entire universe.

Indian philosophy and material science could conceive the earth as a part of the universe. Since otherwise, one cannot explore the origin of life. Hence in the poetic version, the sunlight was described at the same time ecstasy of universe which is an admixture of Indian holistic philosophy and life-science.

In the fifteenth lyric of the anthology of songs 'Gitabitan' poet knocked the door in his words 'Oh God, please open the door for getting the rays blocking avenue of Sunlight'. Here the poet used light as the metaphor of knowledge. No other star can end the night for bringing the day but the Sun. Hence the family of other heavenly bodies was conceived by the poet as deity of darkness. Sun is the God of light. So people must explore the sun.

In the one hundred sixty-seventh number song the poet asked 'Who has bloomed the lotus, aroused the blue sky from slumber'. Here the poet worships sun in the season of Autumn. In night hours the blue sky goes into slumber, does not give anything to the earth. But the sunrise starts the life on earth falling on lotus which blooms, whose fragrance charms all living beings, men and plants. The forest which is the abode of the trees, sun arouses all of them from slumber, the chirping of birds is the expression of joy as if also of the woods. The poet is inspired by a Sanskrit verse on the worship of sun which is 'ohm Jabakusuma, sankasong kashyapeyam mahadyutim, dhantaring sarbapapaghna pranotohasmi dibaka-ram. 'Jaba is a red variety of China rose'. The poet had chosen red lotus because, the light of dawn can fill up the morning sunshine with its fragrance. China rose has the red colour of sun, but it does not have the sweet smell of lotus.

The song which appears as two hundred forty two number' verse in 'gitabitan' says, 'That light is now seen, it appears as a golden spot in the heart of the morning sun'. Here the poet has highlighted the impact of sunshine in development of humanity. That is because dawn is then starting of a new day like the fragrance of lotus despite the nights as symbol of bad now on the advent of a new day that gets illuminated banishing the darkness.

The thirty-seventh verse of 'Gitabitan', (Anthology of Songs) is— 'Light has entered stealthily, where the king of darkness vanishes now'. Here light and darkness are contenders. Sunlight is hence what stabs darkness like knife. It is like knowledge and ignorance alike day and night. Rabindranath has chosen light among all forces of nature as because light, a fundamental force is familiar to everyone unlike magnetism, general and specific gravity. When science becomes song, it is the talent of Tagore who can do it being a committed social activist in his own terms.

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