

|| Jai Sri Gurudev ||



Sree Kshetra Adichunchanagiri

Nagamangala Taluk, Mandya District, Karnataka

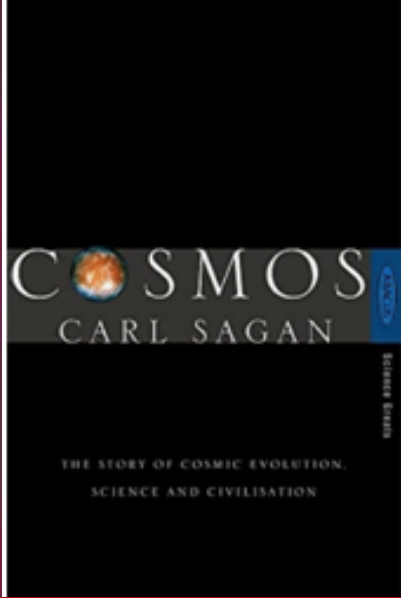
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Cosmos



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Depavali Celebration

November 2021 Edition



Sree Kshetra Adichunchanagiri



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Padmabushana

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Mahaswamiji**

|| Jai Sri Gurudev ||

**Sree Kshetra
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BENEDICTION

Sri Sri Dr. Nirmalanandanatha Maha Swamiji



A man can live without science and technology, but not without knowledge and culture. Such kind of knowledge is provided by our great country India. In this context, Swami Vivekananda says, “The World survives if India lives”. We have lived in such rich cultured land. Thus, India is not elsewhere, it is within us. We learn through our lives. As such, life without cultural values is not admirable. Without them,, a man’s life is incomplete. A few people doubt that Indians are forgetting their cultural values. We believe that India had provided spirituality and equity to the world. It has also provided knowledge and science. It is not only quoted by Indians but also by Albert Einstein, a great scientist. He says that world must be grateful for contributions of India and that he himself has found useful knowledge in the Bhagavad Gita and other spiritual texts of India. We are proud to claim that this esteemed cultural knowledge is provided to the world by India. There is a Sanskrit verse as follows:

*Ayurvasha shatam nrinam parimitam tad ardha gatam
Tasya ardhasya parasya cha ardha aparam balatva vriddhatvayoho
Sesham vyadi voyga dukha sahitam sevadibhirniyate
jivey varitarang chanchaltare praninam kutaha saukhyam*

The verse says, a human being lives for 100 years. Considering this, every day consists of 24 hours with sunset at 6 PM in the evening and sunrise at 6 AM in the morning with half of the day being spent in darkness. Hence, one spends 50 years of his life in darkness only. In the remaining, he spends around 25 years for his personal responsibility and relationships. Thus, only 25 years will be remaining for their lives. A man does not realize how he has spent his lifetime and one fine day death appears unknowingly. Life is as dynamic as a sea’s tides. Happiness and sorrows play their games in the entire life.

This shloka is written by the great poet Bhartrahari. Another verse by him says that a healthy man fears disease, a wealthy man is afraid of King, a handsome man fears of old age and a person with values fears other’s criticisms. Thus, everything on this earth is associated with some kind of fear. Detachment is the only solution for all these insecurities. Siddhartha became Buddha, Narendra became Vivekananda after attaining detachment. What can a person do to attain such detachment? He needs to purify his soul. He needs to develop humanitarian and service attitudes.

Serving others means helping people at times of difficulty. An ignorant man might only think about his wellbeing. Such selfish people cannot be happy in their entire life. Wise men say that a man should spend his entire life in the service of others. So says the second verse of the Isavasya Upanishad:

**कुर्वन्नेवेह कर्माणि जिजीविषेच्छतं समाः।
एवं त्वयि नान्यथेतोऽस्ति न कर्म लिप्यते नरे**

There will be no difference between human beings and animals, if their life is not fruitful. A long life is not great. A life with good deeds is great. A man should desire to perform good deeds rather than being selfish. A life should be spent with happiness and respect, but not with grief. One should develop the service mindedness for it is said:

**ईशा वास्यमिदं सर्वं यत्किञ्च जगत्यां जगत्।
तेन त्यक्तेन भुञ्जीथा मा गृधः कस्यस्विद्धनम् ॥**

All that moves on earth is imbued with Him. Rejoice and let go and do not covet

One cannot see one's own shadow in flowing water. Shadow can be seen only when the water is still and pure. This takes a lot of time and patience. Likewise developing service attitudes takes a lot of time and must be followed constantly throughout life.

A man who lives for 100 years, will have lived a meaningful life only if he spends his life by performing good deeds, serving others and not being selfish. Thus, they need to develop service mindedness. Parents should develop this attitude in their kids right from the childhood. They should encourage kids to perform their tasks and make good friends. These relationships frame their future to a large extent.

Our life is made mainly by our friends and our relationships with them. When the relationships are good, it is fruitful.

There are four kinds of human beings. Persons who desire good for others, persons who desire good for themselves without causing harm for others, persons who desire evil for others for their selfishness and persons who desire evil for others without any reason. The first category of people are not selfish and always perform well for others. The second category of people are those who look after themselves but do not harm others. The third category of people can even harm others for their self-good. The last category of people are very harmful to the society. Everyone must be far from them.

A story needs to be told here. In a forest, a crow and a pigeon lived peacefully on a tree. One day when a royal family visited the forest and rested under the tree. The King slept on a carpet over there. Nevertheless, few sunrays fell on his face later. Observing this the pigeon tried to cover those sun rays falling from the gaps of the tree. However, crow did not realize pigeon's intentions and sat beside it. The crow dirtied the king and flew away. Observing these soldiers fired the gun towards the crow but pigeon was shot dead. The pigeon did not commit any mistake rather desired good for the king. However, the crow was the one who committed the mistake. However, the pigeon suffered the punishment. Likewise, few people suffer from bad relationships. Thus, one should have relationships with good people only.

Karna was well known for his charity in the Mahabharath. He was also kind hearted, talented, powerful and divine in nature. However, he was always on the side of evil people- Kauravas. He lost his importance because of this. Thus, a man should always build relationships as they define our life.

We must develop an attitude of service. It is the right way of leading a fruitful life. A man becomes much powerful when he develops the same. However, services are to be carried out to worthy people. Nevertheless, this task is not easy as people criticize them. This should not demotivate one. Mother Teresa found orphans and people suffering from leprosy from every part of Kolkata and served them in her Ashram. However, she faced a lot of criticisms and insults on her way. She did not stop there but continued serving society. Only such strong people can create a better world.

In this context, we can conclude that people who build good relationships and have an attitude of service can lead a fruitful life. They gradually move towards salvation. Service mindedness not only develops others lives, but also lightens up our own. Thus, serving others must be with the intention to help others, but not to gain popularity. Everyone should develop this to make his or her life meaningful.

I pray God to bestow kind heart to all.

One Knowledge: Selina Sharma

Sudhamahi Regunathan meets Selina Sharma to discover scholarship does not differentiate between culture and borders. It can be deep and accepting.

When I read her article on the Baul singers, twenty one years ago, I thought she must be at least a hundred years old. The piece had not just scholarship and understanding but a balanced perspective that reflected maturity. So I sought to meet the writer of the piece. Her name was Selina Thielmann in those days. A young girl, wearing a single plait and a salwar kameez is the one I beheld.

Today, a mother of two and an authority on the music of Vrindavan, Selina Sharma has an interesting story to tell about how she came all the way from Italy to settle down in India, more comfortably than perhaps one born in India. And music was her passport to transition.



Selina Sharma

SR: Let us begin by recollecting some of your most fulfilling moments or experiences or events, something that has given you great and lasting satisfaction.

SS: Well, there are countless events in life – some are joyful and some are sad, some exciting and some disappointing, some inspiring and some thought provoking, but I think nothing can match the bliss and fulfilment I would experience when performing the raga-seva of Shri Radharaman at Vrindaban, when rendering kirtan in front of the lord. The string of musical notes establishes a direct bond with the divinity.

SR: You belong to a family of musicians in Italy. Can you tell me more about your parents and your musical heritage?

SS: Both my parents are well-known exponents of Western classical music. My mother, Serena Mitzscherling, who unfortunately is no more among us today, was a child prodigy and moved on to earn renown as a concert pianist.

In later years, she shifted focus from her soloistic career to concentrate on chamber music and, together with my father and three other musicians, she performed with the famous Robert-Schumann-Quintet of Dresden Philharmonics. The group, headed by my father, who had been the principal violinist of Dresden Philharmonics for several decades, was one of the leading European chamber music groups during the 1980s and 1990s. Both my parents had come to live in eastern Germany after their respective families had been dispelled all over Europe in the aftermath of World War II. As for me, I received my first musical training around the age of three, first from my mother, and later on I was systematically trained in violin by my father.

Both, my father and mother belong to Italy, my father with Polish ancestry, my mother with Czech and Polish ancestry (all part of Austria-Hungary before World War 1, of which my great-grandparents were citizens)



Selina's mother



Selina's parents

SR: Have you met your grandparents?

SS: Unfortunately, I never met any of my grandfathers both of whom were martyred during World War II. I do however remember my paternal great-grandfather who was in his nineties when I was a toddler. With both my grandmothers, I shared a very strong bond.



Selina's home in Italy

SR: What brought you to India? How did you think of researching on the musicians of India?

SS: Although I received training as a violinist since early childhood and later on pursued my studies in this field, first at the Dresden Special School of Music which I attended from 6th standard, followed by a diploma course at the Dresden Academy of Music, I was never satisfied at the prospect of remaining a mere performer. Rather, my interest was directed at academic studies and research, which is why I decided to not pursue a career as a violinist after completing my diploma course, but to pursue my postgraduate studies in the field of musicology.

Since Indian thought, Indian philosophy and literature had been part of my upbringing, it was only a natural decision to connect my musical background with my cultural inclination by specializing in the field of Indian musicology.

I must tell you that my grandparents and great grandparents were learned scholars in different fields: law, architecture, philosophy and so on. So the study of ancient scriptures including Sanskrit texts apart from Greek and Latin texts was part of their studies. This tradition was handed down generations and I readily picked it up as I had a strong interest in scriptural studies since childhood.

I was lucky enough to get introduced to renowned musicologist Professor Josef Kuckertz of the Free University of Berlin, a specialist among others on South Indian music. Professor Kuckert became my first guru in my musicological studies whose invaluable guidance, of which I was able to partake just for four and a half years until he left us far too early in March 1996, was meant to essentially shape my entire musicological career. So I then pursued my M.Mus from the School of Oriental and African Studies, University of London, and M.Phil from the University of Cambridge. It was as part of my research at Cambridge that I came to India on a fieldwork trip to document the musical traditions of the Vaishnava temples in the Vraja region. During this first visit in early 1994, I found that many of the traditions I was meant to investigate were actually on the verge of extinction, and documentation alone was not enough. There was an urgent need for revitalization and preservation. For this reason, without abandoning my studies in the United Kingdom, I shifted focus to Vraja-based research. Again I was very lucky when another renowned musicologist, Professor Prem Lata Sharma of Banaras Hindu University, not only agreed to guide my doctoral thesis on the Vaishnava musical traditions of Vraja but also granted me permission to conduct my entire research locally, remaining based at Vrindaban.

SR: When did you research the Bauls then?

SS: My initial research was on the musical traditions of the Vaishnava communities in Vraja as well as on the classical dhrupad tradition. Nevertheless, I had been working on Baul music already during my studies at London, not at least inspired by the writings of Professor Josef Kuckertz, who had done a considerable amount of field research on the Bauls. During my first visit to Kolkata in August 2000, I had the opportunity to experience a live performance by Baul Samrat Purna Das, whose music I had been analyzing right since the beginning of my musicological studies.

A few months later, in February 2001, through a common acquaintance I was able to meet that great personality personally, and everything else is history. Our thoughts connected immediately, and Baul Samrat Purna Das agreed to guide me and collaborate in a project directed at the dissemination of the core tenets of Baul thought beyond its outward manifestation through music. He and his wonderful family made me feel completely at home, and after several months of intense work, our joint monograph *Baul Philosophy* was published in 2003. The work concentrates on the various aspects of Baul sadhana, of the Bauls' thoughts and philosophy – a subject very close to my heart as I had been brought up with Upanishadic philosophy, and Rabindranath Tagore – himself a great admirer of the Bauls – had been my favorite author since childhood.



SR: You are now an expert on the art of Vraja...

SS: As I said earlier on, I first visited Vrindaban and Mathura in early 1994 as part of a fieldwork trip while pursuing my research degree at the University of Cambridge. At Vrindaban, I found abundant coverage not just for my proposed doctoral research project on the musical traditions of the Vaishnava temples of Vraja, but also for my studies of the classical dhrupad tradition, which had been the subject of my master's thesis at the University of London. My respected teacher Pandit Vidur Mallik, at that time one of the principal representatives of dhrupad of the Darbhanga gharana, was based at Vrindaban where he conducted daily dhrupad classes. Thus I had the opportunity to not only join him for the daily lessons, but to also accompany Pandit Vidur Mallik on numerous concert tours throughout India, which became an important and lasting learning experience, a summary of which I compiled in my first book *The Darbhanga Tradition. Dhrupada in the school of Pandit Vidur Mallik* which was published in 1996.

Selina with her guru Baul Samrat Purna Das

SR: You even got married to an artist attached to the temple? Can you tell us more about your husband, how you settled down in matrimony with an Indian, your family now and how you adjusted to the traditional lifestyle of Vrajabhoomi.

SS: My husband, Acharya Shri Shashank Goswami, belongs to a family of hereditary priests of the ancient temple of Shri Radharaman at Vrindaban. Besides pursuing the liturgical service at the temple, he holds a degree in Hindi literature and is one of the leading present-day exponents of the art of Sanjhi, an ancient art of ground -painting from Vraja, which is now on the verge of extinction, its tradition being maintained by a mere three temples in Vrindaban, one of which is the temple of Shri Radharamana.

It was in fact our joint efforts for the preservation of the traditional arts of Vraja that brought us together and, together, with other members of our family, we have jointly been involved in activities for the dissemination and revitalization of the cultural traditions of Vraja. Our institute Vraja Kala Sanskriti Sansthana too was founded in 2004 as part of these efforts. Living the traditional lifestyle of Vraja does not mean much of an adjustment for me, as I am from a traditional family myself and I had already been living in Vraja in the same traditional environment for years before marriage. What may require some sort of adjustment is to manage both work and family as responsibilities have naturally increased, but here again I would not say that I am facing much difficulty. My husband and his entire family are not only very supportive, but more than that, we work together as a team. Since the last few years, our elder son Shri Ram, too, has started participating in our documentation and presentation projects – one of his contributions is having anchored a documentary film On the traces of Mahatma Gandhi, which was prepared by us on the occasion of Mahatma Gandhi's 150th birth anniversary celebrations in 2018-2019, and which was released this year on Gandhi Jayanti.



Selina with her husband and children

SR: How did your parents react to your love for India and later your settling down in India?

SS: My parents have always been very appreciative of my work, and without their constant support and encouragement I would not have been able to pursue higher studies. Since I had inherited my affinity towards India through my family elders, my decision to work in my chosen field of studies was only natural and was readily welcomed. For my parents, my academic advancement was most important, no matter in which part of the world I would have to settle in order to pursue my academic work.

SR: Have your religious beliefs undergone a change because of that or does your head and heart have enough space for all beliefs and deities?

SS: No, there has been no need for any change. As I mentioned earlier, I have been brought up in a spiritual environment dominated by Vedic and Upanishadic philosophy, whose study had been part of our family background for generations. As regards religion, I happened to spend my childhood in east Germany, a communist country under whose regime the mere mention of religion was sufficient to invite prosecution - although some relaxation had already taken place by the time I was born, but nevertheless I was always encouraged to keep my religious beliefs and spiritual thoughts as a private matter that is of no concern for the outside world. So the only change, if any, is that religious practices are now integrated in everyday life as it is commonly the case anywhere in India and Asia, with no need to hide them from the public eye.

SR: Now you speak excellent Hindi, wear a sari and do you cook Indian food too? What dish is your favourite? Can you give us a recipe which you enjoy making and your family enjoys eating?

SS: Yes, I do cook food, and yes, of course Indian food. Our family prefers simple food –of course strictly vegetarian. Our younger son's menu is pretty straightforward as he would eat only daal, rice and khichdi. Otherwise, it is of course natural that kids like to try out all kinds of foods, and many of them I do prepare at home, be it pakoda, dhokla, medu vada, dosa, pizza, vada pav etc. As for me, I would be happy with some fruits and milk. But yes, on Ekadashi fasts especially the children enjoy our special dish – aloo thaasa – mashed potatoes with curd, with a tadka of black mustard seeds and curry leaves fried in ghee. My son likes Bundelkhandi bhajiya - made from meshed moong daal, mixed with some green leafy vegetables (spicach, cabbage or whatever is available), and the deep fried.

SR: You also speak many other languages, including Sanskrit. Can you tell us how you learnt so many?

SS: It is simple as I grew up in a multilingual environment. My mother would talk to me in Russian, both my parents in Italian, in school I would have to learn in German, and many other languages would be heard and spoken by our friends and relatives – Czech, Polish, Greek etc. If one grows up with several languages, learning yet another one is not much of a problem. The best example of this you would find in India, where many people speak at least three languages – Hindi, English and at least one regional language.

SR: What are you currently engaged in? What is your plan for the future with regards your knowledge in music and musicology.

SS: My main concern for the last more than ten years has been the documentation, preservation and dissemination of the traditional arts of India, especially with focus on the Vraja region, but our activities cover other geographical areas too. These activities take place under the auspices of Vraja Kala Sanskriti Sansthana. Of course our dissemination projects – and to a certain extent the documentation projects as well – have been affected by the covid pandemic since the last one and a half years, but we have managed conduct a considerable part of our events, workshops and classes online. We have numerous projects that are currently under preparation and are progressing according to the given situation. I do also conduct online classes in vocal music and lectures in musicology and other subjects. Given the hardship many traditional artists have to endure right now due to the pandemic, Vraja Kala Sanskriti Sansthana is also actively involved in their support. Recently, our son Shri Ram Goswami released an online exhibition of his childhood paintings – entirely his own initiative – for the support of children and artists affected by the coronavirus pandemic.

SR: What is your favourite bhajan?

SS: Vaishnava jana to tene kahiye...

SR: Do you have a small prayer that is always in your mind? What is it?

SS: No particular prayer, but the name of the lord is always in my mind.

AVATARS OF ACTION AND COMPASSION

MY ENCOUNTER

The Trinity of Indian Space Programme



Y.S Rajan remembers the stalwarts of the Indian Space Programme

When I began my research career at Ahmedabad in 1964, benefits from the Space Technology, even worldwide, had just begun to surface. The potentials were talked about; NASA was active. The then Soviet Union was active. There was a Space race. Very few in India could even think that it could be relevant to India and the Indian people, when the country was mired in poverty, severe food shortages, even a humiliation by China in 1962, constant war like situation with Pakistan, a lot of promises by the politicians with very little on the ground.

It was in such a milieu Dr. Vikram Sarabhai had convinced the government to get some meagre funds to begin the Space Program.



Vikram Sarabhai

Out of many potential benefits, he chose four items of applications to concentrate upon:

- i. Reaching telecommunications to a large part of our country
- ii. To reach TV to all the villages in India, so that the educational and developmental messages can reach the vast rural population. That was to help them to better their lives.
- iii. Rapid survey of the natural resources of the country like land, forest, water, agriculture, geology etc. so that they can be better utilized for economic growth and also to monitor various degradation of the land to rectify them.
- iv. Better weather forecast and monitoring of weather-related disasters like cyclones, which devastated the country every year.

With meagre government resources, he used his contacts worldwide: USA, France, USSR, Japan and others to get free rockets and some training for scientific experiments. He also simultaneously started building up a space technology base in the country. Beg, borrow, do lot of hard work; undeterred by failures, which was common to such an emerging technology. He was also aware that the developed countries would deny technology once India starts learning and doing! Such is the techno-power politics of the world. True even now.

He belonged to a rich business family. He did a lot to grow the family businesses. But when the load of growing space program needed all his attention, he left the family businesses to other members. He struggled a lot to build the Indian space program.

I joined his early team in about a year of its start. As a young man in my twenties, they were powerful goals (not pipe dreams) as we understood the technological possibilities that had just risen in the horizon in the developed countries.

Many now won't have an idea as to how India was in the 1960's, 1970's and even later. Indians now have access to more than 300 TV channels in all Indian languages. They have many choices: films, serials, religious shows, cooking, sports, educational, adventure, news, foreign channels etc. It is a problem of plenty, with many middle-class houses having two TV sets. Some see them also in their mobiles.

In the 1980's even telephones were considered as luxury. Several years of waiting to get a telephone. Public booths were a nightmare. Now there is a mobile with a street hawker, construction worker and women at home.

All these are now possible because of the trigger given the Indian National Satellite INSAT, which started covering all of India, at one stroke in 1983. Telephone capacity addition which took 15 years before the coming of INSAT, were added in 18 months. TV could reach anywhere in India. Such was the rapidity of expansion of telephone and TV in India. What is now plenty is due to the massive trigger given by space technology.

Look at the home delivery of items you order online. It would be impossible without the satellite-based Global Positioning System (GPS) and the satellite images based maps giving Geographic Information System (GIS). I will not elaborate on them. Readers are advised to hear my YouTube talk delivered at IIT Hyderabad Extra Mural Lectures (EML), delivered on August 14, 2021. It can also be accessed from my website www.ysrajan.com (Impact of Space Technology on Improving Quality of Life).

The above-mentioned items are not just for entertainment alone. They are the main story of economic growth and employment. Without them, India would be struggling as an agricultural country.

Beyond these economic items, look at the human dimension:

During 1977 east coast cyclone, Andhra Pradesh had a death toll of 10,000 people. Equally, severe cyclone in 1996 had 1077 deaths with 225,000 families evacuated. Recent severe 2014 cyclone had only 61 deaths.

Why such a reduction? INSAT had (has) a meteorological instrument which can track the cyclone even when it begins in the sea and see its progress every 30 minutes. Along with ground radars, it can track change of paths. It involves a huge network, cluster of things, I have explained in the lecture quoted earlier. Even when telecom towers are cut off, the rescue workers with small backpacks can communicate through satellites with battery operated systems.

These all came from the clarity of vision of Sarabhai to begin with. He was a man of action with lot of compassion for Indian people. He could not live to see them all.

He died young when he was just 52, in December 1971. He had left behind many young men and women who started mastering space technology and application. I am one in the few hundreds of them when he left us.

Still ISRO he nucleated and built, was a fledgling organization. If you look back the history of post-independence India, there are many initiatives, which die slowly after the initiator leaves or passes away. Many good companies in public sector have perished this way. Many national laboratories and educational institutions reach a low plateau and survive with nothing much to show as achievements. Even many agricultural or road projects or river projects have suffered such a fate. It is sad.

Indian Space Program was fortunate not to suffer the fate. Though the Destiny took away the initiating avatar, immediately following his passing away two others came to rescue it, in the transition period and to make it work towards the goals with which the program was started by Sarabhai. In fact, the two persons made solid foundation and established sustainable systems within the organization to make many more achievements not just stagnant with initial targets, but to go beyond in keeping with world developments. It became world class!

It is this TRINITY, which rarely occurs in India, Sarabhai (1963-1971), Satish Dhawan (1972-1984) and Brahm Prakash (1972-1979).

We will briefly look at what happened with the other two persons of the TRINITY and what lessons we can learn for the present and the future.

Sarabhai had a good blend of business and science knowledge in him, thus giving viable and economically crucial goals for ISRO,

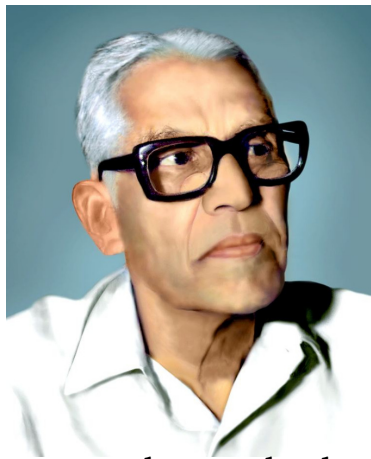
Satish Dhawan who succeeded was a great world-class engineer-scholar with aeronautics background and was the Director Indian Institute of Science. He did not have a direct experience of handling a delivery bound organization, as ISRO was cast by Sarabhai.

The number two person, though not exactly named so, was Dr. Brahm Prakash (BP as he was fondly called in ISRO) was a US trained metallurgist and scholar. Bhabha brought him to India. BP had built up several public sector delivery companies under Atomic Energy Department like Uranium Corp. of India, Midhani - a high tech alloy company, Nuclear Fuel Complex etc.



Satish Dhawan

After the early death of Homi Bhabha in air accident, Sarabhai took charge of Atomic Energy, and he gave many more projects to BP. He did very good work. By googling Brahm Prakash ISRO you will see more about him. Notable are an article by C V Sundaram and one that appeared in INSA.



Dr Brahm Prakash

After Sarabhai's death, the transition "politics" within Atomic Energy establishment sidelined BP. He was picked up to take charge of Vikram Sarabhai Space Centre (consolidating many independent units which were directly under Sarabhai in Thiruvananthapuram, then called Trivandrum). In Satish Dhawan's words, which he said later, "VSSC is the heart of technology of ISRO". It had more than 75% of ISRO budget. Dr. BP was eight years elder to Satish Dhawan (SD). There are some unique features both of them had in common and in some different. Overall, they were complimentary and supplementary.

Both were men of great personal and professional integrity. They subsumed their egos so that ISRO can grow and achieve. Especially in India, many persons who come and take charge, try to change projects and programs with a false ego of leaving their "imprint." SD and BP built what was left behind by Sarabhai and corrected a number of problem areas without any fanfare.

In the initial period, Sarabhai had large number of independent units directly reporting to him in order to give them the freedom to initiate and experiment. But as they grew the need for consolidating them was getting very clear as the independent units showed conflicts detrimental to delivery of the big projects outlined by Sarabhai.

First task was to consolidate them into viable components for delivery of projects. BP took the bulk of the load, relieving SD to do tasks of top ISRO management.

In such situations the conflicts of and suspicions between number 1 and 2, debilitate, if not destroy, many organizations. ISRO was fortunate. Again, this consolidation was done without hurting the feelings of many key persons at that time, though all were to come under a firm discipline of the organization, which was transparent.

Another key feature was that organizations like ISRO, which was working on frontline technologies, which were moving fast worldwide, needed a hybrid model of

- doing disciplined project work, and also
- doing some innovative research and development to be ready for a future which would make the achievements already made, obsolete.

Many organizations do not master this art of balancing: either they get trapped in routine mode and become obsolete over a period, not being able to innovate. Or in the name of innovation, go helter-skelter and fail on delivery of products or services.

SD & BP were masters in the balancing act and created systems to ensure it, through reviews and protecting small but new innovative works as well. One most important thing done by SD, with full support of BP was to create a TROIKA of balancing the governmental processes and financial rules of dealing with government money without affecting the program. Both were deeply aware of public accountability as they dealt with taxpayers' money. Unlike the usual Ministries of Government, which control the delivery organizations often detrimentally, the Department of Space (DOS) worked as partner to ISRO: Additional Secretary DOS, Joint Secretary DOS and Scientific Secretary ISRO (representing a band of young scientists in program offices of ISRO) was the Troika.

SD was given all the powers by Government as Chairman ISRO, Secretary DOS and Chairman Space Commission. But he balanced himself against a single person rule through the TROIKA and delegating most of the powers to the Centre Directors like BP.

At this point we need to mention about two angels who helped SD to do, were Additional Secretary, DOS, M.A. Vellodi and Joint Secretary, DOS, T N Seshan.

Those who want to know more about SD shaped ISRO please read my article on Satish Dhawan in my website www.ysrajan.com

At the time of passing away of Dr. BP, we in ISRO had brought out a small brochure. ISRO stalwarts had written on him. I have said in my piece that Dr. BP removed my doubts about the possibility of Dharmaputra on the earth.

SD had said about BP in that document “Dr. Prakash never raised his voice in anger, never missed a schedule or failed to complete responsibility he had undertaken – how do you measure the contribution of such a man? We will all miss him.”

It is God grace, that I had the good fortune of working with and shaped by this TRINITY right from my young age and the angels I mentioned earlier.

They have created many hundreds technology achievers for India. Dr. Kalam is one of them. He mentioned this TRINITY OFTEN.



Celebration of Good over Evil

Our understanding of good and bad, our ethics, says Radhika Srinivasan, has a close relationship with the cosmic processes as Vedic mythology explains it.

The Indic worldview is founded on the principle of Dharma, that which upholds Order in the universe (derived from the Sanskrit root Dhr or dhar). Dharma may mean many things all at once; in a relative sense, righteousness, duty, religion, justice etc. But, at the root of it all, Dharma is not a law imposed from without; it is the very nature of the universe, known as Rta in the absolute sense. The world seems chaotic and more often than not, there's disorder, one may argue. The shastras say that's only for a specific time and in a specific space for, ultimately Nature asserts itself and establishes Order and thus the adage, "Satyameva Jayathe", Truth alone prevails. Here Truth means that Order.

To bring home this vision in as many ways as possible, ancient seers and sages who sat in deep meditation evolved amazingly creative ways to ensure life is in consonance with this Order. Myths and legends that capture the disorder from time to time highlight how eventually chaos is destroyed and Dharma shines in all its glory and splendour. What causes this disorder or disturbance? Moral turpitude that takes the form of a demon or rakshasa creates chaos and destruction on earth. He generally epitomizes the qualities of anger, greed, stupor, jealousy, avarice or ego and commits acts of adharma.

Take for instance Kamsa, the king who jailed his cousin, Devaki and her husband, Vasudeva and killed their babies and perpetrated atrocities on his people.

Krishna killed Kamsa and established order in the kingdom of Vrishni (Mathura). Or, Ravana, who abducts Rama's wife, Sita and displays excessive traits of lust, ego and arrogance. Rama, the Dharma incarnate, rooted in peace and tranquility, is confronted with a man who has ten demonic attributes (visually captured as ten headed Ravana). A clash of values is inevitable.

The Dharma Shastra recommends four carefully weighed responses, as against immediate reaction, to reach a resolution. Sama, or conciliatory talk; Dana, arriving at a compromise by giving; Bheda, applying logic, even issuing a warning; danda, taking up arms to fight to the finish to establish righteousness.



This is beautifully captured by the Tamil poet Kamban in the famous phrase, “Inru poi naalai va”, (Go back, think and return tomorrow), when Rama gives one last chance for Ravana to hand over Sita. And when war is the last option, that is referred to as Dharma yuddha, a just and a “must” action. Interestingly, it is Mandodari, Ravana’s wife, who laments that Ravana was destroyed not so much by Rama’s arrow but by his own loss of all sense control (Indriyani pura jitva). A beautiful song in Kannada highlights the relativity of dharma and says, Rama comes as a saviour to the believer of Dharma, and as Yama, the god of death, to those who tread the path of adharma (Yamanalli).

And so it is, with the Mahabharatha war fought by the Pandavas and their cousins, Kauravas. When Arjuna, the chief warrior among the Pandavas, is thrown into confusion, despondence and sorrow, Krishna advocates action, sometimes misunderstood as egging his devotee to fight. The Bhagavad Gita, the sacred book that enshrines our Vedanta, the ultimate Hindu philosophy, shows us that the field of Dharma is the field of action for a kshatriya warrior. And to establish Order and righteousness on earth, war becomes a dharma, the last and only resort where one goes beyond the sense of doer-ship. Order and chaos appear cyclically in a ceaseless world of creation, preservation and destruction, all of which are a part of Rta or the cosmic Order.

And that’s why our gods and goddesses wield weapons. They indicate that Dharma can be protected on earth only when the means to protect the order is at hand. In fact, Mother Durga has ten hands and wields the combined weapons of Brahma, Vishnu and Siva to vanquish the dark forces of evil and establish victory on the tenth day of Vijayadashami celebrations. The outer victory shows physical might and power to destroy Mahishasura, the buffalo headed demon. The inner conquest signifies destroying impurities born of ignorance and moving towards peace and enlightenment. In fact, the disc that Vishnu holds is the chakra of Time, known as Sudarshana, signifying the beautiful philosophy of time destroying what it creates.

Be it Onam or Navarathri, Dussehra or Deepavali, victory over evil is a cause for celebration, quite naturally. And what better way than to light up our hearts and homes, invite relatives and friends, cast off the old and wear new attire, sing, dance and eat, all with the blessings from our gods and goddesses. To us, our Puranas are very real and we live out and recreate these tales through Dolls festival, Durga Puja or Ramlila. For, the dharma that the Divinity establishes is the order we seek and celebrate in our lives.

A visit to our temples can help us see a visual translation of this thought process. The Gopura is the created universe, brimming with plants, animals, humans and celestials. As we enter the inner precincts, we leave the seemingly chaotic created world behind and move into our own inner space. Interestingly, at the entrance door stand two protecting deities, known as Jaya and Vijaya, two versions of the central deity inside the sanctum sanctorum. Jaya stands for detachment and Vijaya stands for wisdom, both symbolic of the subtle and the sublime victory. The Dhruvamuthy or the deity within stands for Dharma, Rta or Sat, both at the relative and absolute level.



<https://www.hinduismoutlook.com/dwarapalakas/>

Vedanta sees the world as different yugas or eons dominated by different gunas or qualities; Satva (purity), Rajas (passion and activity) and Tamas (darkness). All humans are a combination of one or more qualities which create Daivik (divine) or Asuric (demonic) personalities. When the time of turbulence matures and Asuric personalities gain ascendance through deceit, dacoity, death and destruction, there's a threat to the values or dharma. Tamas (darkness) sees Satva (light of knowledge) as enemy and deluded by ignorance and arrogance, tries to annihilate the created world. Sri Aurobindo, one of modern India's greatest yogis, says, "The sword of the warrior is as necessary to the fulfilment of justice as the holiness of the saint". Rama's bow, Siva's trident, Durga's sword are thus as revered as the gods themselves, as instruments of Dharma.

Victory or defeat, success or failure, good or evil, order or chaos, can never be absolute, as the duality of the terms suggest. In fact, the Bhagavad Gita tells us to go beyond these relative opposites to the state of pure Being (Sat), in total awareness that life is a cosmic game played out, whether by our gods and goddesses or their creations on earth.

*Fall in love
with the process
and the
results will come*

What is Victory? What is Defeat?

Farida Khanam looks closely at victory and defeat with her deep understanding of Islamic philosophy from the original sources of the Quran, the teachings of the Prophet, well expounded by Maulana Wahiduddin Khan (1925-2021) the Islamic ambassador to the world.

What constitutes real victory? Is defeat fatal? Are there cases in history, where apparently a group was victorious in certain terms but soon realized that they had lost everything? And the opposite case of where a group felt humiliated and defeated but soon discovered the gains they had made?

The example for the apparent defeat but a permanent victory is taken from the life of the Prophet. It is well known but the least understood and not followed by the later generations—that is, the Treaty of Hudaibiyah. It is unfortunate that there is no example of this kind in the present times as no one drew a lesson from the example of the Hudaibiyah treaty.

Changing Face of War—Defeat in Victory

The twenty year War in Afghanistan (7 October 2001- 15 August 2021) declared in response to the September 11 attacks on American soil ended on 15 August 2021. The US declared that they have won the war, while the Taliban declared they had won. If you ask the Americans who “won” the wars in Iraq and Afghanistan, you will realize that now the very meaning of “defeat” and “victory” has changed.

Pyrrhus was a Greek king who lived in the third century BC. He fought the Romans and defeated them. But in the course of this war his army and the entire economy of his kingdom were reduced to a shambles. The king’s apparent victory was, from the point of view of results, actually a terrible defeat. This is how the phrase ‘Pyrrhic victory’ came into being. It refers to what seems, on the face of it, to be a victory, but what, in actual fact, is a complete defeat. The American predicament is very similar.

If you examine the history of War in general, it will not be an exaggeration to say that most victories have turned out to be ‘Pyrrhic victories’. Every victory is necessarily accompanied by two types of loss—one, destruction of life and property, and another, a burning hatred in the heart of the defeated party for the victor. No victor can escape these two losses.

Revenge may set on a chapter of chain reaction; that is, revenge-after-revenge, while forgiveness ends this chain. Forgiveness implies that you have put a full-stop; while revenge in this case, effectively means you have only added commas.

The most destructive psyche is one that is driven by the desire for revenge. The worst thing about revenge is that it has no end. Revenge is extracted for every revenge, and this continues non-stop. It does not die till the one who is bent on extracting revenge himself ceases to exist.

But those who do regard them as such should not be unaware of a law of history—and that is when an enemy thinks that he has taken revenge on his opponent, it is an opportune moment to make the enemy one's friend by responding to him in a positive and constructive manner. Once one's enemy's desire for revenge has been quenched, it is the right moment to deal in a friendly manner with him. And then, following this, he will turn into a close friend. This happens at the level of individuals, communities and nations. This is a law of nature. This law is expressed in the Quran (41:34) as follows: 'Good and evil deeds are not equal. Repel evil with what is better; then you will see that one who was once your enemy has become your dearest friend'.

There should be a general ban on war.

War: Counter-Productive

The conditions prevailing in ancient times allowed for war in self-defense. But this permission to go to war conformed to the law of necessity. Now, in the present situation, this need no longer exists, therefore, there should be a general ban on war.

The only initiative worth taking is one which will yield positive results. If one embarks on a destructive course of action it will be oneself that suffers.

This story of tragic loss is a necessary and inevitable outcome of the path of violence. But there is no question of such loss at all on the peaceful path. If one who treads the path of peace appears to be defeated, in actual fact he is still victorious, because he does not lose the available opportunities. These opportunities and potentials still remain open to him. Availing of these, he charts a new course in his life, journeying towards success.

Before taking any course of action Prophet Muhammad always gave full consideration as to the consequences of any action. He believed that our initiatives should always be aimed at yielding positive results – the initiative which proves counterproductive is no initiative at all. He supported result-oriented action.

And in a world of weapons of mass destruction whoever wins also loses.

Nuclear bombs and other destructive devices are totally against the divine scheme prevailing in the beautiful world of nature. Why then should there be the present stockpiling of nuclear arms, which is the greatest threat not only to peace but also to the very survival of mankind?

Violence is totally forbidden in Islam.

Dialogue and Arbitration: The Only Option

Dialogue, or peaceful negotiation, is the path prescribed by Islam. Islam is based on the principle of peaceful negotiation. Violence is totally forbidden in Islam.

The Quran tells us that the way of peace is the best way. (4:128)

There is another verse, which tells us that the way of negotiation and arbitration should be adopted in controversial matters. (4:35)

There is a teaching of the Prophet to this effect: “Do not desire or seek confrontation with the enemy, but rather ask for peace from God.

We learn from a number of examples throughout Islamic history that Islam not only lays down principles of dialogue, but also gives practical demonstrations. In the Makkan period of his mission, the Prophet of Islam repeatedly practiced the principle of dialogue.

Let us understand these principles from the well-known treaty of Hudaibiyyah between the Quraysh and Prophet of Islam that continued for about two weeks.

The Circumstances Which Led to the Treaty of Hudaibiyyah

This treaty is known in history as the Treaty of Hudaibiyyah or the Hudaibiyyah Agreement.

In the sixth year of the Hijrah, the Prophet Muhammad left Madinah for Makkah along with his companions, so that he could perform the rite of pilgrimage there. He had reached Hudaibiyyah when the pagans of Makkah came forward and barred his way, saying that they would not allow him to enter Makkah. Mutual negotiations followed, as a result of which a peace treaty was drawn up and signed by both sides.

This treaty was executed apparently on the unilateral terms and conditions dictated by the enemies. As a consequence, the companions of the Prophet Muhammad were very disheartened: they considered it a degrading treaty. According to this Treaty it was agreed that for ten years there would be no war between the Muslims and polytheists. The end of fighting was in fact synonymous to the opening of the door of peaceful interaction with the opponents. After the migration to Madinah, due to incessant fighting, such activities had stopped. Now the truce had created an open atmosphere in which there could be a free exchange of thought between the opponents.

Muslims found the opportunity to engage in activities which were more positive than just warding off enemy attacks. The result was truly remarkable. Within a short span of two years, Islam became so powerful that Makkah was brought into its fold without any fighting. That is why, referring to the treaty, the Quran stated:

‘Truly, We have granted you a clear victory.’ (48:1)

Why did the Quran call it a ‘great victory’ when there was no event to indicate a ‘victory’ at the time of the revelation of this verse? The truth is that the description did not refer to a political victory, it was referring to the supremacy gained by the believers over their opponents as a result of the treaty. The believers were now in an advantageous position over their opponents. What had initially appeared as defeat turned into a victory.

The actual possessor of power is God

Granting Victory—God's Domain

Another point that we learn from this verse is that power is not granted to any group simply because of its struggle for that end. The actual possessor of power is God, and it is He who grants power on earth to whom He wills. Everything which is given by God in this world is for a test (67:2)

Both victory and defeat for one who understands this, will have equal value—in either case they will concentrate their efforts in giving the right response which is acceptable to God

Humility in victory is the response a believer is supposed to give. And as far as defeat is concerned a believer is guided to know that no trouble arrives of its own accord. Every tribulation comes from God, and it afflicts man so that, through it, he should receive guidance. Trouble softens a man's heart and jolts him out of his moral slumber. Trouble prods and sharpens a man's mind. If he refrains from negative reaction, then trouble will become the best divine instruction for him.

VICTORY & DEFEAT
ARE THE PART OF LIFE!



REFLECTIONS ON A MEANINGFUL LIFE

Prema Raghavan recounts some personal incidents which help us understand the right from wrong, the good from bad.



I lived opposite Bombay central station for a year. Every evening, a banana fruit seller on the road outside our home would offer his remaining stock at cost price before they perished. He was an old man with a sincere heart and a feeble voice. Not many gave him or his situation much notice. He ran a small business with a highly perishable commodity and small margins. To gain an advantage from his wholesale purchase price, it was important that he was able to sell all his residual stock even at cost. Any inventory left at the end of the day would eat into his modest profits.

One of my evening routines became to buy the leftover bananas from the fruit seller at the regular price and distribute it to the beggars outside the station. This brought joy to both the fruit seller and beggars. We do not help everyone equally—some people just seem to be more worthy of help than others.

As my stay in Mumbai was for a limited period, I was concerned about creating an unsustainable dependency. When I shared this with the fruit seller he expressed his gratitude for my generosity but spoke of his faith, that made him do his best each day and leave the rest to the divine. This illiterate man with no knowledge of our scriptures was practising the Gita. This is how civilizational wisdom lives on and propagates. Through the lived experience of each of us.

Our intentions to help may sometimes encounter a different response.

A job for a widow

A young lady from a simple family had recently lost her husband. More than the emotional trauma of this loss were her more immediate concerns on an income to run her home. Even as she began to look for work, I promised to send her some monthly amount until she found a job. She was grateful for my offer.

She finally got a job a few months later in her home town in Kerala, where she has a house and extended family for moral support. I wished her well and stopped my further remittances. She called and cursed me with anger, saying I could easily afford to continue what I had been doing.

I heard her out and remained silent. It reminded me of how swiftly expectations follow any dependency. Our needs may be satisfied but never our greed.

A restoration of faith

The inbuilt mechanism of the lord is to grant us inner peace only through good deeds. No one is either a saint or a sinner. Our epics are full of such nuanced characters.

A young girl lost her husband on the day her daughter was born. When I went to offer my condolences, I noticed her ears, neck and fingers were bare of even the minimal accessories. I told her to wear something simple and she just smiled in response.

Her mother came down to see me off and informed me that she spent all her savings on her husband's liver surgery. So she recently sold her jewels to meet her daily living costs. She did not like to ask anyone for help and was confident her gold would see them through till she found work.

I visited her again and convinced her to accept my assistance until she found work. A compassionate society is one where we all look out for each other. I got a call six months later informing me that she had secured a weaving job in Tirupur. She thanked me for my assistance and asked me to stop sending her the remittance. I was disappointed that my opportunity to assist such a saintly person had come to an end and sent her gifts instead to celebrate the upcoming Deepavali festival.

What is good and what is bad?

The recognition of hunger is an innate human quality which does not need to be taught. The same is true of morality. All that must be taught is how to apply that innate knowledge appropriately like the banana seller. Just as a child knows when it is hungry, a person knows how to be good.

Each of us have unique personality and character traits that consistently influence our behaviour across time and various situations. Philosophy, human tendencies, behaviours and characteristics are broadly classified into three groups (or Gunas, in Sanskrit).

Tamas — lethargic, regressive and dwelling in the past

Rajas — action oriented, aggressive and futuristic

Sattwa — balanced, focused on the present and on self

Life is a dynamic force which expresses itself through these three modes. Whether a person has sattva, Rajas or Tamas as the dominant quality depends on his karma, and also the food he consumes. We can come to a conclusion about what guna is foremost in a person by observing their behaviour. We can all reflect on the experiences that shaped us, the things we lost, and the things we gained.

We as human beings have the possibility to consciously change the levels of the gunas in our body and mind. By altering the presence and influence of external objects, lifestyle, and thoughts we can increase or decrease the gunas. Whichever guna is predominant will affect how we perceive the world around us. It will affect behaviour, attitude, actions, attachments and so on. For example, a person who is predominantly tamasic will see everything as negative and destructive. A person who is more sattvic on the other hand will perceive the universe as positive and will find joy and happiness in everything. However, the mind is very unstable and can fluctuate very easily from one predominant guna to another.

This philosophy applies while giving money as well:

Tamasic – giving a bribe to get something done

Rajasic – giving money for name, fame or tax benefits

Saatvic – what the right hand does, the left hand does not know

Free will and self-awareness are unique to human beings. Despair is not a lack of happiness but a lack of having meaning which comes from belonging to and serving something beyond yourself. Religion is an integral part of daily life in Eastern societies, and it serves as an intuitive guide for many facets of our lives.

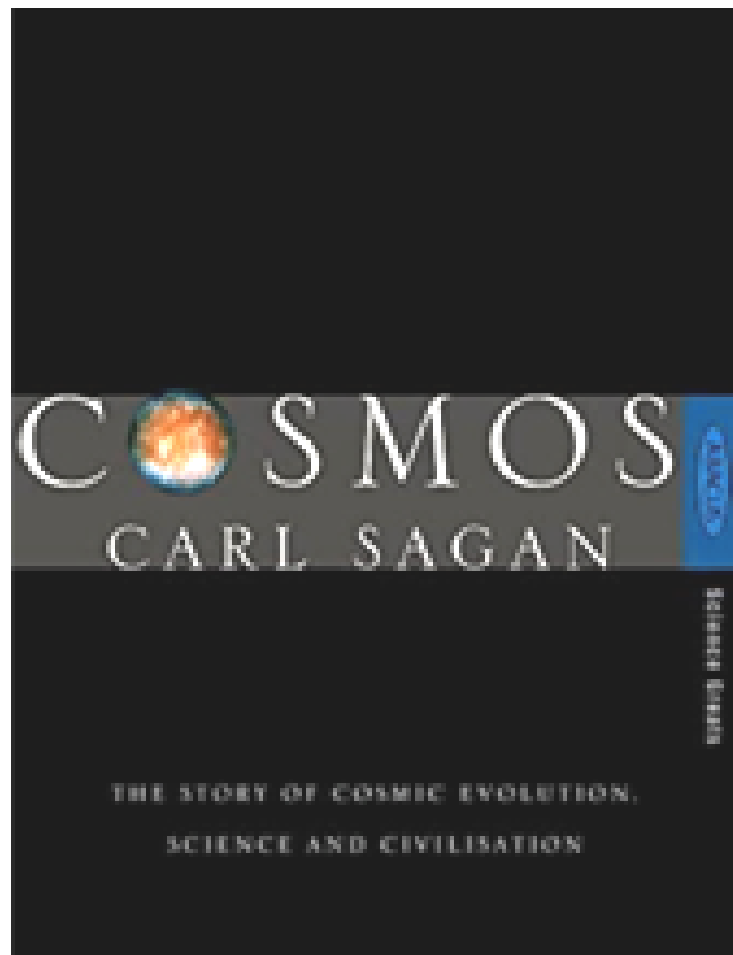
“You have power over your mind — not outside events. Realize this, and you will find strength.” — Marcus Aurelius

Between Immensity and Eternity: A Tribute to Science and the Scientific Method

R.Dasarathy revisits Carl Sagan's book Cosmos, to tell us, among other things, that cosmos is the Greek word for order.

The question foremost in most people's minds with regard to space exploration is –“Is the exploration of the Cosmos a lot of wasteful expenditure just to satisfy our curiosity?” Carl Sagan attempts to answer that concern up-front in his famous book “Cosmos”, first published in the 1980's and still relevant, making it a modern classic. Right at the beginning, it is stated clearly:

“The size and age of the Cosmos are beyond ordinary human understanding. Lost somewhere between immensity and eternity is our tiny planetary home. In a cosmic perspective, most human concerns seem insignificant, even petty. And yet our species is young and curious and brave and shows much promise. In the last few millennia we have made the most astonishing and unexpected discoveries about the Cosmos and our place within it, explorations that are exhilarating to consider. They remind us that humans have evolved to wonder, that understanding is a joy, that knowledge is prerequisite to survival. I believe our future depends on how well we know this Cosmos in which we float like a mote of dust in the morning sky.”



They remind us that humans have evolved to wonder, that understanding is a joy, that knowledge is prerequisite to survival

Exactly forty years ago, the TV Series “Cosmos: A Personal Journey” written and hosted by, Carl Sagan(1934-1996)was broadcast for the first time.Almost immediately, the show became one of the most widely-watched TV series, thanks to its insight and ability to simplify complex scientific concepts. The book under discussion, is based on the TV series. Carl Sagan was basically an astronomer at Cornell University and a consultant to NASA during the happening period of 60's and 70's.The book however,is not only about astronomy, but multi-disciplinary – it gives us an insight into physics, chemistry, history, geography, genetics, astrology, ...

The other constant refrain in the book is the comparison with expenditure on arms and armaments, especially in the period of the Cold War. “Our intelligence has recently provided us with awesome powers. It is not yet clear that we have the wisdom to avoid our own self-destruction.” If only a fraction of the resources is diverted to the study of the Cosmos, we could be better prepared to face and/or prevent the cosmic calamities and catastrophes, which is an inevitable part of the long term.

The book can also be seen as a tribute to science and scientific method. The origins of Western science can be traced back to the Greeks. “Cosmos is a Greek word for the order of the universe. It is, in a way, the opposite of Chaos. It implies the deep interconnectedness of all things. It conveys awe for the intricate and subtle way in which the universe is put together. There was a community of scholars, exploring physics, literature, medicine, astronomy, geography, philosophy, mathematics, biology, and engineering.”

Cosmos is a Greek word for the order of the universe. It is, in a way, the opposite of Chaos.

In most cultures across the world, there was a god or goddess in the sky for every human concern. “Gods ran Nature. If they were happy, there was plenty of food, and humans were happy. But if something displeased the gods - and sometimes it took very little - the consequences were awesome: droughts, storms, wars, earthquakes, volcanoes, epidemics. The gods had to be propitiated, and a vast industry of priests and oracles arose to make the gods less angry. But because the gods were capricious, you could not be sure what they would do. Nature was a mystery. It was hard to understand the world.”

This background also helps us to understand the origin and evolution of astrology, as well, again across multiple cultures. In fact, the early Astronomers (or Astro-physicists) were originally Astrologers. When we understand the laws of Nature through the study of science, it can lead to an improvement in our lives. Thus Science became the new language to understand Nature – instead of the superstitions and/or myths from religion. Furthermore as Science demanded rigorous evidence, before accepting an hypotheses, it became “self-correcting”.

Ancient Greeks, as the founders of the scientific method, “believed the underlying harmony of the universe to be accessible through observation and experiment.” However, a section of the Greeks, led by the mathematician, Pythagoras believed that the “laws of Nature could be deduced by pure thoughts”. “They did not advocate the free confrontation of conflicting points of view. Instead, like all orthodox religions, they practiced a rigidity that prevented them from correcting their errors”. This attitude curbed the growth of Science, later in Christianity and through the Dark Ages. The book underscores that search for life elsewhere in the Universe, is closely linked to the question of origin and nature of life on the Earth – in fact that these are two sides of the same question. Given the size of the Universe, there is a significant probability of life elsewhere, according to Carl Sagan.

Carl Sagan draws lessons from history – the European explorers in the 15th and 16th centuries, who discovered new lands and new sea routes in a spirit of adventure (besides the lust for gold). The subsequent generations have to thank these adventurers for the opportunities that it created. Similarly, Carl Sagan visualizes that future generations will thank us for the exploration of space and the nearby planets. However, again using the parallel of earlier adventurers, given the uneven development of technology, developing a mutually beneficial relationship between strangers across planets will not be easy.

“ ... the Cosmos is rich beyond measure: the total number of stars in the universe is greater than all the grains of sand on all the beaches of the planet Earth.”

The book traces the evolution of our understanding of the two near-by planets Venus and Mars. Venus is the closest to our conception of “hell”, where due to the ‘green-house effect’ the heat is trapped in, causing very high temperatures. This is a lesson for the Earth, with its depleting ozone layer. Mars on other hand is most earth-like and a “potential human colony”. Though popular imagination and fiction has exaggerated this likelihood far too much !

The book then discusses Einstein’s discoveries related to Light in a seemingly simple manner, resulting in the maxim “Thou shalt not travel at or beyond the speed of light”. This insight into the nature of Light is necessary, when we try and understand the Stars – as the Light we perceive could be a million years old – the time the light takes to reach our eyes. We can only wonder as the author says: “ ... the Cosmos is rich beyond measure: the total number of stars in the universe is greater than all the grains of sand on all the beaches of the planet Earth.” Chemical reactions are taking place continuously in the stars, starting from the lightest atom, hydrogen – which are then ‘cooked’ into heavier atoms. The most interesting aspect is that finally these molecules constitute us – our body, our food, our environment i.e. we are made of ‘stardust’.

The well-known structure of the Atom, with Protons and Neutrons in the centre and the electrically charged electron cloud around it, as the basic unit of matter (discovered in early 20th Century) is described in detail. The various stages in the lifetime of a star is detailed. Many of the terms related to the study of the universe like Quasar, Quarks, Black Hole, Supernova ... are explained in context. Towards the end, the structure of the Brain is explained – consisting of the reptilian, limbic (corresponding to mammals) and finally two-thirds of the brain the cerebral cortex. The cerebral cortex is the newest part of the brain of a human and the seat of intuition and critical analysis. The hope is that the trend towards ‘enlightened self-interest’ will continue and cooperation will flourish.

Ancient Indian thought and philosophy on the Cosmos is acknowledged, evidence is this quotation below:

“Some foolish men declare that a Creator made the world. The doctrine that the world was created is ill-advised, and should be rejected. If God created the world, where was He before creation? . . . How could God have made the world without any raw material? If you say He made this first, and then the world, you are faced with an endless regression . . . Know that the world is uncreated, as time itself is, without beginning and end. And it is based on the principles . . . “

- The Mahapurana (The Great Legend), Jinasena (India, ninth century)

However the advancement and contribution of Indian science is not mentioned – for unfortunately this fact, is not well-established and documented systematically.

Title: Cosmos

Author: Carl Sagan

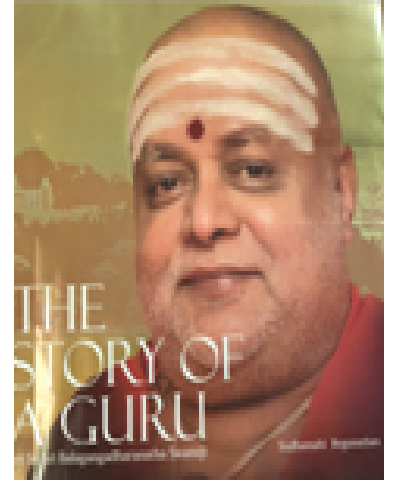
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Continuing the biography of **Sri Sri Sri Dr. Balagangadharanatha Swamiji** Excerpted from the Book "The Story of a Guru"

So far: Huchchamma, Sri Sri Sri Balagangadharanatha swamiji's great grandmother left Kunigal with her son Chikkalinga Gowda and walked through the forest of Savanadurga finally reach Banandur. There she and her son found new life. Her son married and had four children himself. In his house, was a pooja room dedicated to Bhairaveswara. Chikkalinga Gowda married Boramma, daughter of Anche Thimmiah Gowda, who lived in the house opposite theirs. They were all devotees of Kalabhairava atop Adichunchanagiri hills. With His blessings a beautiful baby Gangadharaiah was born.



Gangadharaiah Goes to School

Soon Gangadharaiah was old enough to be sent to school. In those days there were no waiting lists, parent's interview or children's interview for admission to schools. Often in small towns there would be only one or two primary schools and the one closest from home is where the children would be sent.

Gangadharaiah was sent to the village primary school. The teachers enjoyed this little pleasant faced boy. He was obedient and intelligent. He was also exceptionally friendly, they noted. All his classmates loved him and Gangadharaiah in turn was very sharing and giving. In those days every village built its hopes on the primary school. Parents and teachers dreamt of laying the foundation for brilliant students who would bring pride and fame to their village. So the dedicated teachers appreciated and taught Gangadharaiah with such care and love that it had a deep impact on him. Equally the teachers of the school identified in Gangadharaiah some very special qualities that gave them great joy. At the age of nine, he finished his primary school with all the skills a nine year old can acquire.

The school still stands almost as it was in those days except for fresh coats of paint that ornament it. While going to school, on the way the youngsters of the village would be playing gulli-danda or marbles. They would stop and let Gangadharaiah pass by before continuing their game. "The reasons for that were, firstly, this young boy was very dignified even then. He would always walk as though deep in thought. More importantly, he would tell on us if we cheated and so we did not want him to see," laughs eighty-eight year old Veerappa, who used to be among those who played.

Veerappa was never known by that name in his village. He was always called Rama because he played the role of Rama in the village plays. Gangadharaiah used to watch all the plays staged in the village. Gangadharaiah was also known for his concern towards animals. "He would pet the cows and not let anyone hit them," recollect the villagers.

At one end of the village lies a pond, a small temple and a thick grove of coconut trees. There is also a Hippie tree there. Gangadharaiah, even as a child, used to go and sit under the Hippie tree while he watched over the cattle grazing. Recollects Mariappa, a local farmer, he would be reading something or engaging in deep meditation. Sometimes he would also play with the other boys.

One day when he was much older, Mariappa recollects, that a snake hovered around Gangadharaiah's head. While all the other children saw it and ran away in fear, Gangadharaiah sat unmoved. The snake went around him and went back into wilderness.

At the other end of the village lies the highway which would perhaps have been forest area in those days. Crossing that you come to Bidadi. The middle school was in Bidadi. Bidadi is a town which now lies in urban Bangalore, the capital of Karnataka. In those days it was not part of Bangalore but was a busy commercial centre, nevertheless. It lies on the Bangalore - Mysore highway. It was a very busy centre of activity, in both the areas of business and education. In other words Bidadi housed not only the market for the produce from neighbouring villages but also the government offices to regulate them. In Bidadi was the middle and high school for many villages in and around. It was about 5 kilometers from Banandur.

Every morning young Gangadharaiah would walk these 5 kilometers to get to school. The walk was a pleasant one, through nature at its best—a little stream, lots of greenery and birds chirping. In the evening, after school, Gangadharaiah would walk back, again imbibing the purity of nature. The school he went to stands just as it was then, even today, right from the classrooms to the Headmaster's office!

The headmaster of the school, Marigangappa, was observing Gangadharaiah. Marigangappa was a good friend of Chikkalinge Gowda II, and so he had begun watching over the child with parental interest. Soon he found the child was a really promising student. Later he found himself telling people that he did not know what it was, but there was definitely something very special about the lad. He brought out the love in you! One evening, Marigangappa sat in the veranda of his house and calling out to his wife said, “You know Chikkalinge Gowda? His second son studies in our school. He is bright, intelligent and obedient. He walks ten kilometres everyday to come to school. I am thinking why not ask him to stay with us?”

Maigangappa's wife knew his actions did not depend on her saying yes or no. this was his way of informing her that there would one more mouth to feed. She did not mind. Theirs was a big family anyway and in those days it was common for teachers to take such interest in their students. “You should help if you can,” she replied to her husband. Marigangappa was happy with that reply and so one fine day he walked back with Gangadharaiah from school to his house and met Chikkalinge Gowda II with the proposal that Gangadharaiah stay with him in Bidadi so that he would save time and divert his energies towards studying harder.

Chikkalinge Gowda was willing and happy that his friend should offer to keep his son. Boramma, however, was in two minds.

“When will we see Gangadharaiah?” she asked her husband. “How do we know he is eating properly and living happily?”

Chikkalinge Gowda assuaged her fears. “Let us try it out for some time. Our son will save much of his energy and Marigangappa's family is educated. They may improve our son's quality of education. Now pack quintals of rice, sacks of coconuts and other vegetable and fruits we have from the fields. Do not forget a sackful of ragi,” he told his wife. Boramma packed a little more than was necessary of everything for she hoped there would enough for everybody and her son.

Marigangappa was a good man with a charitable disposition. He was also a deeply religious man. He was a Veerashaiva. Veerashaivism is the movement that originated with Basavanna as a response to the situations that existed at that time, in the 12th century.

At that time the popularity of Buddhism and Jainism were at the zenith. In reaction came many religious responses from the existing traditions. One among them was the Veerashaiva movement. This movement believed that there is only one God and that God is Siva. It cut across castes and creed and reached out to every man as equal. It also developed religious literature in Kannada which was understood easily by the common man.

Marigangappa thus offered a very spiritual atmosphere for Gangadharaiah, just as it had been for him at home, and yet here was another dimension. Added to it was the fact that Marigangappa's family was highly educated and contributed greatly to Gangadharaiah's perspectives on life. The whole family looked after Gangadharaiah with care and tenderness. Marigangappa's brother Yajman Jayshetty was also a teacher. Yajman Jayshetty was greatly impressed by Gangadharaiah's discipline in word and deed. This kind hearted gentleman spent time with young boy and found he also spoke and behaved with great humility and maturity. Jayshetty liked the young man and so tried to share with him as many ideas and thoughts as he could.

They say one's disposition is genetically determined. Gangadharaiah seemed to have some much disposition for from that age itself one could see leadership qualities in him. He was not petty. He was helpful. Coming from a small village and an agricultural family, he did not know paucity of food. Yet he understood what it would be to be hungry. So he was very generous with food, always sharing and giving- one of the first indicators of leadership qualities. His generosity and willingness to help made it possible for him to communicate with even the toughest of boys and once they got associated with Gangadharaiah, they naturally became more disciplined.

His brothers recollect all through his hostel life, which came later, he would be moving rooms. Each time the family would have to buy him new vessels, bedding, lamp, clock etc., because he would say his room mate was using his things, and he did not like asking for them! In school Gangadharaiah worked hard and was very attentive. One mutt class, the teacher had found him little distracted. "What is it son? Are you not able to understand this simple rule for solving equations; removing the brackets, multiplying, adding and finally subtracting? That is all there is to it".

"I understood that Sir. I was just wondering this operations would be applied to life also," Gangadharaiah had replied.

In every subject Gangadharaiah looked for its relation to everyday life.

If all this gives a feeling that young Gangadharaiah was just a goody-goody boy who did good deeds and that is it, you are mistaken. He had the spirit of fun too and loved sports. He himself was an excellent wrestler. If Marigangappa did a good turn by housing Gangadharaiah, the young man made his stay of three years most fruitful and took and gave the best of himself in the period.

Whenever he went home, his village people welcomed him with open arms. In spite of having studied so much, he was always willing to graze cattle. Once when he was in the forest, a cobra slithered close to him. Gangadharaiah looked at it as one would his brother or sister. The cobra quietly slithered away. This is the incident Marigangappa had mentioned in Banandur.

So peaceful was he that his grandfather would always call him Matadipatl (head of a Mutt) or mahatma! Little did Thimmaiah then know that he was being prophetic! Gangadharaiah passed class VII, the examination for which was conducted at the district level by the Department of Public Instruction, Karnataka Government, and obtained a first class. Those days marks were not easy to come by. A first class was no mean achievement.

Stars on earth...the night of Diwali

All over India people celebrate this day says Priyanka Varadarajan. It symbolises bringing light into darkness

The light that illumines never dies. There can be no sorrow when that lamp of illumination is burning. It is symbolizing this idea that the fun-filled festival of Diwali is celebrated.

Myths and stories abound on why Diwali is celebrated. Equally there are "rules and regulations" on how best to celebrate the festival. Obsessing the mind are the so-called rituals and the fanfare that goes with it. Perhaps amidst all the crackers and new clothes, it is worth calling one moment to one self to reflect on the moral lesson of Diwali. In it lies the true legacy. In it lies the true meaning of the festival of lights. Whether it is celebrated as the day Mahavira attained nirvana or the day Naraksura, the frightening demon, met his end or as the day Ganesha, the elephant faced god visits the earth with Lakshmi, the goddess of wealth, or as the day Lord Rama returned to Ayodhya, the message lies beyond all this. The lamp lit on Diwali symbolizes bringing in light into darkness.

On this moonless night the sun moves into the zodiac sign of Virgo and is midway between the equinox and winter solistice. As the wick is immersed in oil, its sustenance derives from one's own dedication to light oneself within as well as emit that light; the light of wisdom, of patience, of goodwill, of amity. The fundamental premise for all the above ideas is the morality of man.

Diwali or Deepawali, the festival of lights is celebrated all over India. In some parts of the country it is also celebrated as the birth of the new year. The festival seeks edification of the spirit more than any other form of upliftment. Therefore it is that the same spirit is carried forth even in the manner in which the day is celebrated. On the moonless night of the month of Karthik as a darkness threatened to envelop the minds of the people, they light a lamp symbolic of the undying illumination of moral tenets, of victory of good over evil. In the memory of true inner light, the festival of lights is a beautiful expression of the soul's desire. The traditional woman from a typical south Indian household would have bought new clothes for her family. In addition she would have got the house cleaned and made elaborate rangolis at the entrance to the house.

Diwali is celebrated in the early hours of the morning. The night before all the new clothes are arranged on a plate and placed before the deity in the puja room. Before the sun rises, the families are up and have an oil bath for on this day Lakshmi is said to reside in the oil and Ganga in the waters. It is believed that on this day the demon Narakasura was killed. Generally when the news of any one's death is received, one is supposed to have a bath that marks the end to mourning and a new beginning. That is the significance of the oil bath on the Diwali morning. All over Tamil Nadu you can hear people ask each other, "Ganga snanam aacha?" meaning have you had your bath in the Ganges. And the reply is an enthusiastic yes! It symbolises that just as all of one's sins are washed away with one dip in the Ganges, on this day Ganga residing as she does in all waters has washed away the evil of the likes of Narakasura and good will once again reign over the world.

Many sweets are also prepared for Diwali and alongwith it a special item called Diwali marundu or leghiyam is prepared. It is like Chyavanprash. Interestingly in South India lamps are lit only in the puja room and it is only on the first day of the following month of Kartikai that lamps are lit all around the house. In Kerala lamps are lit everywhere for they believe in the story of Bali. It is said that Vishnu came as a dwarf and asked of King Bali for land equivalent to three steps as his gift. Bali was performing a major puja when he was donating gifts to Brahmins after the puja was over. He had almost but exhausted his gifts when the dwarf appeared. He said that since Bali had not much to give him, he would be satisfied with land that covered three steps. Underestimating the land that a dwarf could cover with three steps, Bali consented. The dwarf however grew in size with each step. With one step he covered the world, with another the nether world and now for the third Bali offered his head as that was all the space available. Thus it was that Bali was sent to nether world. On the day of Diwali alone he comes back on earth and celebrates the victory of good over evil and so people symbolically light lamps.

In most parts of north India lamps are lit all over the house on the day of Diwali for it is believed that on this day Rama the hero of Ramayana and an incarnation of Vishnu came back to assume his kingdom after fourteen years of living in the forests. That is why the city is decorated with lights.

This moonless night when the sun enters the zodiac sign of Libra, it is also said to be the night of Lakshmi puja...or worship of the goddess of wealth. Therefore it is that account books are closed today and new books opened, particularly in Gujarat.

One interesting practice in north India is to play cards or gamble till the night of Diwali. The belief is that if you do not gamble then you will be born a donkey in your next birth. Since donkeys are fast becoming extinct, it may be a good idea for some of us to stop gambling, but the fever catches on and all nights are spent in card parties. The mythology behind this is Siva and Parvati used to play a game of dice. Parvati always won. Siva always lost. In her losing lay his gain for if Siva won, then he would have conquered Parvati which metaphorically means she would be subsumed within him. If that happens then there would be just one androgynous form, no man distinct from a woman and life would stop. All activity would cease and that would be the end of the world. Everything would be static. In order that the world may go on, the game of dice has to be won by Parvati. Therefore it is that invoking a new lease of life, the game of cards is played. Indeed many parts of India celebrate Diwali as the beginning of a new year.

Two days before Diwali is celebrated as Dhanteras or the birthday of Dhanvantri who emerged out of the ocean when it was churned. He brought up the elixir of life. He is therefore known as the father of ayurveda too. On this day people buy new containers, cook and place it in that. People also buy gold or silver on this day. Two days after Diwali is celebrated as the day of Bhaiya dooj when the sister-brother bond is re-affirmed.

Diwali is primarily a social function celebrated to allow the inner light to burn forth into the dark night. All the myths associated with the festival talk of the victory of good over evil. There is reference in mythology to how that the practice of lighting lamps on this day came from the Jaina tradition. It is believed that Mahavira attained nirvana on this day. This day was described as Dipalikaya which literally meant the light leaving the body. In order to keep the light burning, the light of knowledge and spiritual edification lit by Mahavira, the Jaina tradition lit an oil lamp. The lamp was so beautiful that every year everybody started lighting lamps on this moonless night. That night came to be called Dipalika and later became Dipavali or Diwali.



We Are, What We Think We Are

Aruna Srinivasan says staying positive keeps you and your organization in good health, for most part.

Many of us have heard this mythological story where Arjuna and Dhuryodhana were ordered by their Guru to locate just one “good person ” in the city. Dhuryodhana came back saying there was not a single person who was good. And Arjuna came back saying that he found everyone in the city to be good and so could not choose just one person.

The story is often narrated to illustrate the significance of nurturing positive qualities in our minds. Our personalities and our lives are shaped on the basis of our thoughts. Our thoughts are the basic yarn from which the fabric of our personality is woven. And the tapestry of our life depends on our personality.

To get an insight into the way our lives are woven we need to take a deep look into our own thoughts. One has to be aware of our fears and apprehensions and desires and needs. It is very important to realize that even a skillfully planned strategy could become a failure if the person handling the job feels it is going to be so. Talking in a broad sense, it is not the strategy but it is often the individual, or the team of individuals, who infuse energy into a project to make it a success.

Consider this situation: It is a garment unit. Export orders are piling up and the owner of the unit is working on a shoe- string budget. He has to make the best of the available workforce. And in this situation, as if to add on to his woes, a couple of employees refuse to take orders from their supervisors. As the work piled up and output decreased, the employer got worried about the stagnant load of raw textiles waiting in the pipeline to transform into garments. And then he got an idea.

A week later, the factory was running in full swing – resulting in completion of the backlog orders and securing more too. What did the employer do to resolve the worker problem? Nothing really significant. He simply gave more responsibility to the disputing workers. He split certain jobs and put them in charge of certain specific assignments and gave them free hand to make their decisions. The same persons who were resenting more work earlier were now putting in extra hours of labour; voluntarily and cheerfully, as section-in-charges. What brought about the change was their own perception of both their status and the realization of their capabilities.

While every trouble-kicking employee cannot be turned into a section head to make him more productive, this case study illustrates what an individual could perform with high self esteem; either by inducement as in this case, or by one’s own volition.

The key word is positive perception of oneself. When you are aware of your thoughts, your state of mind, your beliefs, fears and attitudes, you can have a clear vision about what obscures your path to success. And then you can make the conscious transformation by clearing the obstacles in the mind. At the core of our being, our body and mind listen to what we talk about ourselves. If you tell yourself, that you are a coward, you indeed become one.

Patti Leviton, author of *Miracle of Words* cured herself of cancer and wrote the book motivating a lot of people. She had not only endured the disease but also kept her morale and spirits high enough to cure it. She writes, “We have the power to control our thoughts, adjust our attitudes, our outlook, and slowly, I believe the body is ‘given the permission to heal.’ We can gradually give the body the freedom to mend, and function, as it was meant to, in a healthy manner. Slowly, the body will respond to our verbal or mental affirmations. The second step in this journey of health is belief... If you are fearful and apprehensive, the body likewise will react in a negative way.”

What she says about health here could be applied to every aspect of our life. The bottom line is to weigh your situation from all angles. Analyze the advantages and the disadvantages at your disposal and make a conscious decision about the course of action you have to take. Once decided, don't hesitate, just stand by your decision. You know you are good; you know you have taken all aspects into consideration; so there is nothing that could topple you out of balance from your course. When you keep telling yourself similarly and when you stick to your course with absolute confidence, things fall into place.

Another thing Patti suggests is to visualize the actual state of wellness. “Research says,” she writes, “when we visualize or think about our bodies functioning healthfully, (remembering a time when our bodies were the strongest and healthiest) certain hormones and chemicals are literally secreted to replicate that good health.” Having won a battle against one of the worst killers of modern times, the author is epitome of positive thinking.

One reason why most patients who go into depression find it difficult to recover from the illness is the negative state of mind, which shadows the mind. It is very important to hold on to one's positive state of mind during such difficult times and make a conscious effort to pull oneself out from the deep pits of self pity. Allowing oneself into wallowing into it only aggravates the illness.

To live a healthy life – mentally and physically – you start from scratch. Tell yourself that you have no problems. And even if there are problems, tell yourself that you are going to find solutions and start working on the solutions methodically.

One famous carnatic song, written by elderly statesman and freedom fighter, Late Sri. C. Rajagopalachari (Rajaji) and rendered in fine voice by the legendary melody queen, Late M.S.Subhulakshmi, goes like this: “I have no complaints, Oh, Lord...I have no complaints whatsoever...” The entire verse in Tamil, which emphasizes the virtue of positive thinking, has remained a favorite with many Tamils across the world. Click on the link below should you wish to hear the song. Stay Positive!

<https://www.youtube.com/watch?v=dScFe52Of4k>

What is the purpose of our life?

...Is it merely to eat, sleep, enjoy, procreate, struggle and die?

Asks Radha Burnier (15 November 1923 – 31 October 2013), who was the president of the Theosophical Society in Adyar, Chennai and International President of the Theosophical Society in 1980

If so, it is hardly human for all lesser creatures do much the same. They live unthinkingly and act according to Nature's dictates, but they do it with innocence, grace and charm. Human beings living that kind of physically-centred life, but acting consciously with selfish motives and giving organized expression to their cruelty and greed, pollute the earth with evil and introduce an element of ugliness into Nature's operations. Evil is said to exist only at the level of the human mind for it is here that harm is done knowingly and selfishness is wilfully practiced. Unfortunately very few people ponder the purpose of their own lives and life in general...

Most men and women live mechanically, unreflectingly, largely conforming to the aims and ethos of their environment making physical pleasure and egoistic satisfaction the centre of their activities... The quality of a person's life changes when there is a deeply felt impulse to know the truth, to discover all that existence means and the human individual is capable of, is to make merry and fill the brain (or nowadays the computer) with information.

For millenia there has been no essential change in society because the urge to enquire into the deeper content of life does not arise from within, and generally people listen only by rote to religious teachings. External conditions have changed but not the psyche of humankind... For change to take place, the life of the senses and the craving for excitements of the mind must actually die down and be replaced by a yearning to understand and discover, first hand, the truth about life.

William Blake's simple poem awakens us to the question with which every form of life confronts us:

Little lamb ,who made thee?
Dost thou know who made thee?
Gave thee life and bid thee feed,
By the stream and o'er the mead;
Gave thee clothing of delight.
Softest clothing, wooly and bright;
Gave thee such a tender voice,
Making all the vales rejoice?
Little lamb who made thee?
Dost thou know who made thee?

...Since the human mind is capable of asking such questions, it must turn seriously to answer them. We ought to be compelled from within to explore why ideas of justice, beauty and truth have an importance in human consciousness and culture, even though they have nothing to do with the struggle for survival, which is said to characterize the process of evolution....people realize through the lives of pure and noble souls that truth has transformative power. “Ye shall know the truth and the truth shall make you free,” so said Jesus...only by discovering life’s deeper significance and cosmic purpose underlying the manifested world can human nature elevate itself to its destined dignity.

What is truth? Learning to answer it has paramount importance for humanity and is closely connected to dealing wisely with everyday problems...but to hear words which cloak the truth is not the same as realizing that truth....J. Krishnamurti spoke many times about word not being the thing...He said: When you hear the words, ‘love your neighbour’ is that a truth to you? It is truth only when you love your neighbour...” this implies that truth cannot be passed from one to another. No guru can act as proxy. Just as medicine cannot be swallowed by proxy...

Unless it is known inwardly, it is not truth_ only a deceptive shadow. Only an enquiring mind can make itself free...and perceive that human advancement is essentially a growth into a realization of the values which harmonize and unify...learning to be at one with all living things and to embody the values like kindness and compassion, non –acquisitiveness, simplicity, absence of pride and conceit...when the mind becomes free of internal disorders, harmony comes into being. The whole world would change if people realized the importance of discovering the truth about the self....

(Excerpted from the article ‘There is no Religion Higher than Truth’ from Creeds of Our Times, The Foundation for Universal Responsibility of His Holiness, the Dalai Lama.)

Making Molecules do what they have never done before

Neeraja Raghavan has some exciting takeaways from Nobel Laureate Prof. David McMillan's experiences.

Once upon a time, there lived a working-class family in Scotland, where the father went to work in a steel mill and the mother worked as a house help. Nobody in the neighbourhood had ever gone to college. The older of their two sons expressed a desire to go to college, upon completion of his schooling. "No," said his father, "Why would you want to go to college? Of what use is that going to be? We have never sent our children to college!"

But the boy was adamant. So he went on to college and later got a job that fetched him more money than his father had ever made. This turned the tide.

And Dave, the younger son, was made to go to college after he completed schooling – by his erstwhile sceptical father! [You could say that his older brother catalysed the process of college education for Dave.] Enrolling for Physics in cold and wet Glasgow, he didn't welcome the lectures at 8 am every morning in a freezing, wet room. By contrast, the Chemistry lectures began at 10 am in a bright and well-heated hall. Not surprisingly, after a year of Physics, when Dave could switch subjects if he chose to, he changed his major to Chemistry. "Suddenly, Organic Chemistry spoke to me!" he jokes, with disarming honesty.

And guess what: David MacMillan is this year's Nobel Prize Winner for Chemistry!

I just finished watching the news conference of the 2021 Nobel Laureate in Chemistry, Prof David MacMillan, of Princeton University. To say that it left me inspired is an understatement. It left me awestruck: and with a number of questions to ponder over. Let me share with you some of these.

How does a person become successful? What are the enablers? What are the obstacles?

Does path-breaking research always need huge amounts of funding? Is every successful person driven by a passion to pursue that goal right from early childhood?

Haven't we all asked one or more of these questions, at some time or the other?



David Mcmillan

An unusual question popped into David's mind one day. Catalysts had been known for years: metals which helped chemical reactions to occur faster and at lower temperatures – by their mere presence. Couldn't organic molecules be made to play that important role? David wondered. After all, organic molecules are found abundantly in living things, and using them as catalysts would render the residual catalyst at the end of the reaction biodegradable – not always so for metal catalysts!

“How do you get molecules to do something that they have never done before?” He pondered.

So he went on to pursue this idea, and published a two-page paper in 2000 at the end of a successful set of experiments (where the cost of reactants was around 5 cents!). This two-page paper in the Journal of the American Chemical Society (JACS) based on a reaction known as Diels Alder reaction (discovered in 1948) fetched him this year's Nobel Prize for his remarkable breakthrough in organocatalysis. The ramifications of this discovery are numerous: from the role of such catalysts in producing drugs to their harming the environment in the process.

So it is not at all surprising that Prof Mac Millan declares that ground-breaking research need not always require high levels of funding: what it does require is asking questions in a hitherto unexplored area! “It is the follow through that is expensive, new concepts are not!” He declares.

“Formulate your own questions – it's not about the answers, necessarily. It's all about the question!” He says, thus encouraging youngsters to pursue questions in virgin fields without fear.

So the college education that his brother catalysed had so many unforeseeable consequences. Reactions occur when reactant molecules collide with each other – something catalysts help enhance. What happens when people collide with each other in a constructive way?

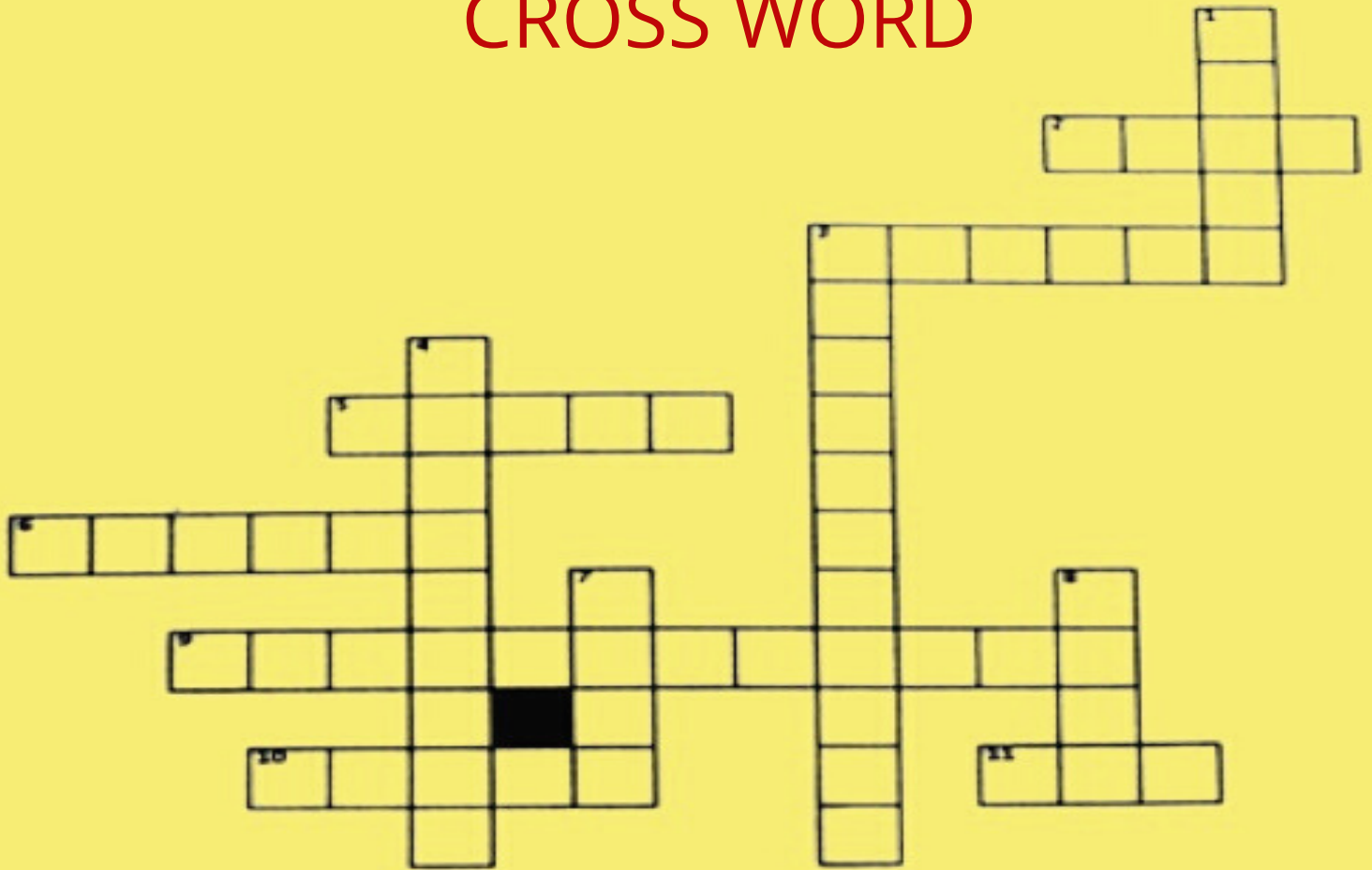
Yet another was an idea that David had for catalysing inter-departmental collaboration in Princeton: he launched the Princeton Catalysis Initiative or PCI. He was perturbed by the fact that the numerous brilliant researchers in Princeton University hardly ever talked to each other in corridors, let alone collaborate across disciplines. So he came up with a proposal to bring about just that: which the Provost and Dean immediately approved with some funding. Professors and researchers across departments were invited to join a ‘speed dating for scientists’: where each one had to present their research in just five minutes before a cross-departmental audience. Following this, each one was asked to share a single Power Point slide with an idea that required cross-disciplinary collaboration – and the PCI initiators had envisaged funding about 50 projects. Today, they are in a position to fund 700!

Thinking of such an idea – and not restricting himself to just research in organic chemistry, was something that I found truly remarkable.

“You can learn to be creative,” Mac Millan says with conviction, “It's a learnable skill set. You don't have to be born creative.”

So - what's your question? Or maybe – how do you think **you can catalyse bringing people together**, to share ideas and produce something useful?

CROSS WORD



The festival that celebrates the victory of good over evil is called ...Diwali

Diwali is also called...Deepavali

It is celebrated by ...lighting lamps

Some celebrate it as his return to Ayodhya ... Rama

Some celebrate it as the destruction of a demon by Lord Ktsihna...Narakasura

Some celebrate it as the day of nirvana of the 24th Tirthankara of Jains.....Mahavira

Some celebrate it as the day of freem for the sixth Sikh Guru...Hargobindji

In some parts of India it is celebrated as the commencement of a new year...Gujarat

To take things that belong to another without telling that person is called ... stealing

To say that which is not the truth is called...lying

To hurt another verbally, emotionally or physically is calledviolence

To feel the sadness of another is called... compassion

To feel envious of another persn is called jealousy

Think Beyond the Obvious

Sudhamahi Regunathan

A small town was well known for two reasons: its benevolent king and the beautiful tree that stood in the forest that surrounded the town.

The king was kind and considerate to humans and animals and plants. So the land was fertile and there was harmony and peace in the town.

The king lived in a palace made completely of wood. The palace had been built by his ancestors and had withstood many hundreds of years. It was extraordinarily beautiful.

The tree was beautiful in that it had leaves of every imaginable colour. A whole bunch of green leaves stood alongside orange, red, purple, blue, ones. People from far and wide came to see and touch it. There was no other tree like that anywhere in the world. The tree was also very gentle, it gave those who came to see it, a lot of joy. Every once in a while the king himself would go and look at the tree, caress its trunk and whisper, "Take care. Your cheer gives me strength."

One day when the king was sitting down for lunch, something fell on his plate. He looked up to see a crack in the ceiling of the palace. Something had fallen from the crevice in the wooden ceiling. The king immediately called his chief architect and wanted the palace ceiling to be repaired. Many engineers were put on the task and soon they all came to the king saying they needed strong wood of a certain thickness.

"What stops you?" asked the king, "go get any tree that will serve the purpose and repair it before it is too late."

The king's men searched the forests completely and came to a rather sad conclusion. They hesitated to tell the king but the king commanded them to do so.

"Sire, the only tree that fits the bill is our beautiful tree."

Now the king was in a quandary. He could not get that tree cut nor could he let the palace fall. He thought over it all night and finally instructed that the tree be cut.

Sorrow spread like wildfire in the city. No one wanted the tree to be cut. Birds cried, animals wept. Each one tried to give some solution. Nothing worked. The king was sad too, but his engineers told him that was the only way out.. The tree was also sad.



Illustration: Raaga Chaudhary (9)

As night fell, the tree wept in solitude. At that time she felt someone nudging her at her foot. The tree looked down to see a small blade of grass poking her. "Yes," said the tree, "do you want to say something?"

"I have an idea," said the blade of grass, so scrawny and so tiny. The blade of grass whispered something to the tall and beautiful tree.

The next day when the woodcutters went into the forest with a heavy heart, they raised their axe and held the beautiful tree, all set to bring her down. But, they recoiled! They were shocked to find it all pulpy and soft...

"It is rotten!" they exclaimed.

"Rotten?" asked the people

"Rotten?" asked the king.

No one could believe it. Only yesterday the tree had been very healthy and today it was rotten? They all came and touched the bark...it felt so soft and gooey! Panic held the kingdom in its grip. What will happen now? The king thought hard. How will he restore the palace? He ordered, "There are the logs from three trees in our go down. Add them up and make up the thickness required," he said. The engineers were very happy with his decision. Such a simple idea had not struck anyone as they were thinking only about the beautiful tree. Soon the palace was repaired.

Everyone waited with sorrow for the day the beautiful tree would fall. One day went into another, but the tree blossomed even more. When someone touched its bark, it did not feel rotten any longer. What had happened?

"Well," replied the beautiful tree," the blade of grass suggested we call all the chameleons to fix themselves on my trunk and change their colour to look like me. We did that and so my trunk felt soft. Now that my cutting has been averted, the chameleons have gone back and the blade of grass, my hero, is smiling."

The normally-ignored blade of grass felt so proud. The beautiful tree was beautiful because it was humble enough to listen to the smallest of creatures, mused the grass. The beautiful tree was beautiful because it gently told me to look for alternatives that suits everyone, reflected the king.

The people of the kingdom were very happy with their king and their beautiful tree, once again.

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