

LIFE STREAM

ANNUAL ISSUE 2012 - SEASONAL MUSINGS

Clouds come floating into my life, no longer to carry rain or usher storm,
but to add color to my sunset sky. - *Rabindranath Tagore*

THEME: SEASONAL MUSINGS

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LIFE STREAM – ANNUAL ISSUE 2012 is a publication of the Life Science Foundation

Nobody can discover the world for somebody else. Only when we discover it for ourselves does it become common ground and a common bond and we cease to be alone.
 — Wendell Berry, *A Place on Earth*

WE PRESENT

At last the monsoon is here with a bang! The dark forefoding clouds in the sky; the roaring winds; the blinding flash of the lightening---the spectacular drama of the Monsoon is unfolding before us.

Nothing can describe the beauty and wonderment of this natuatural phenomenon. Ever since it knocks the doors of coastal kerala in early June, year after year, people wait with baited breath for its advance to cover their lands, rolling over hills and valleys, rivers and dykes, fields and pastures, barns and homes. Suddenly, parched brown earth has turned bright green every

In the words of William Wordsworth:-

*"---the meadow, grove and stream,
To me did seem,
Apparelled in celestial light,
The glory and the freshness of a dream."*



*the
where.*

Then comes July, the month of sorrow. The swollen rivers wash away huts, trees cattle and men. Millions are rendered homeless. The fury of the monsoon is terrifying. In the month of scarcity some turn to Gods for peace and comfort, for it is the month of reading Ramayana and other religious texts. For others it is the never-ending struggle for their very existence.

As July turns into August, sunshine is back; fury of the rivers subside; flood waters recede; paddy fields turn from light to deep green. Once again life starts limping back to normal.

Come September the monsoon retreats. One cycle of nature ends; another starts. Life moves on. So does Life Stream!!

*We have compiled information on the subjects from the electronic and print media, reports, books, speeches and other sources so as to make it available all at one place, for your consideration. We invite suggestions, improvements and criticisms from our readers. We present here the Annual issue of Life Stream, 2012 titled **Seasonal Musings**.*

LIFE STREAM TEAM

Sunshine is delicious, rain is refreshing, wind braces us up, snow is exhilarating; there is really no such thing as bad weather, only different kinds of good weather.

John Ruskin

NATURE: QUANTUM ENTANGLEMENT- DEEPAK CHOPRA



Deepak Chopra

To people who are interested in spirituality, peace, mind-body connection and alternate medicine Deepak Chopra, needs no introduction. This Indian-born American physician is widely recognised as a spiritual guide to people across the world, who are in search of the meaning and substance of their life and is regarded as “a global force in the field of human empowerment”.

He began his career as an endocrinologist, but later, shifted to alternate medicine. He is a well-known public speaker and a prolific writer. He has more than 65 books to his credit, with 19 New York Times best sellers. His books have been translated into 35 languages and sold more than 20 million copies world-wide. He is the founder of Chopra Centre for Well-being in Carlsbad, California. Deepak Chopra has the uncanny ability to interpret the spiritual aspects of life in terms of modern science.

*The question as to what is consciousness has confounded man from the beginning of human history. You will discover to your surprise that Deepak Chopra has interpreted human consciousness in terms of Quantum Physics! **The readers who may not subscribe to his view, however, will admit that it makes interesting reading.** Here, we present a reprint of his article on quantum entanglement, which first was published in the Resurgence magazine in the September, 2009 issue. We are grateful to both Dr. Chopra and Resurgence magazine for granting us to permission to publish it.*

Entanglement
matches things up and
provides order and

Actually, I think my view is compatible with much of the work going on now in neuroscience and psychology, where people are studying the relationship of consciousness to neural and cognitive processes, without really trying to reduce it to those processes.

David Chalmers

relationship, instead of chaos. Whenever one hears about progress in the field of artificial intelligence, it's tempting to ask some embarrassing questions. What about when human beings, aren't intelligent? What about our shifting moods, stubbornness, blind spots, resistance and denial? The mind is notoriously perverse as well as inspired. Perhaps artificial intelligence will never reach its goal until a computer is presented with a baffling problem and its answer is, "Go away. I have a headache."

The same holds true for a theory about consciousness, but doubly so. We can isolate a single quality of consciousness, label it 'intelligence', and work on it mechanistically. But consciousness itself cannot be isolated, labelled, or worked on. It is all-inclusive, and, therefore, indivisible. There is no experience, including the scientific experience, that isn't subjective. That, too, adds an enormous difficulty, because we are wrapped in consciousness with no hope of standing outside it to take our observations.



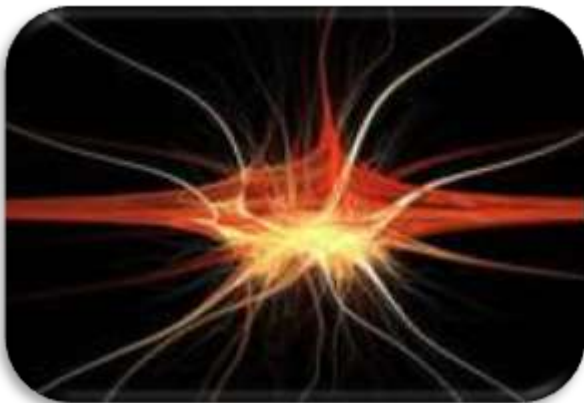
Figure 1. **Brain Waves** Credit: Dreamtimes.com

Two conclusions branch out from these difficulties. On the one hand, you can relegate consciousness to religion or spirituality in general. After all, if consciousness is all-inclusive, exists everywhere, and cannot be described, doesn't that sound a lot like God? The second alternative is to admit the difficulties and abandon all those approaches that don't work a priori. My choice has been to take the second road, because if we are all entangled in consciousness, if we are immersed in

it every second of our lives like fish in water, why pretend to objectivity? A priori, the method of data-collecting, impartial

observation and precise measurement is useless.

Having cleared the underbrush, what can we see? First, we might see this queer phenomenon known as quantum entanglement. As used by quantum physicists, entanglement is far more a mystery than a knowable phenomenon. **Two particles are entangled, if they behave simultaneously in response to each other.** That is, if an electron changes its spin at point A, its paired – or entangled – electron at point B will show a corresponding, but opposite change. The mystery of entanglement lies in its simultaneity. **It doesn't matter if the two particles are separated by billions of light years. It doesn't matter if one exists in the past and the other in the future. Entangled events reach each other instantly –** defying Einstein's theory of relativity, which set an absolute limit on the universe, purporting that nothing can travel faster than the speed of light and that past, present and future cannot merge.



Neuron photo -Credit: Photosearch

For a long time entanglement did no harm because it was only a computational curiosity. It was introduced to make certain quantum calculations work out. No-one dreamed that in cold, hard reality anything ever escaped the limits set by relativity. Only in the past forty years has such a possibility been taken seriously, and only in the past twenty years have certain optical measurements taken by the French physicist Alain Aspect verified that entanglement is real. In essence there are forces that penetrate the visible universe but aren't limited by it. Time and space chug along according to set rules, while entanglement invisibly disobeys the rules and does whatever it wants.

I haven't touched on the secret ingredient here, which is the private and personal distress that

quantum entanglement arouses. If two particles can react to each other simultaneously, cause and effect go out the window, and cause and effect are the whole basis of experimental science. In their anxious moments, physicists became like priests who just got the news that Jesus didn't believe in God.

I've offered a layperson's précis, but what this means for consciousness is staggering. A few years ago there was an interesting experiment on the fringes of respectable science in which a clairvoyant, someone skilled at distant viewing, was placed inside a cage insulated from all electromagnetic radiation. In other words, no signal could be sent in or out, including brainwaves. There was complete electromagnetic insulation from the outside world. And yet the clairvoyant's ability to see at a distance (assuming that you believe such ability exists in the first place) was unimpaired. Mind was acting outside the brain. Are we witnessing the same imperviousness to time and space that quantum entanglement represents in physics? In the field of consciousness the applicable term is 'transcendence'.

Consciousness is the only area of human inquiry that demands an explanation of transcendence. This demand arises because, without transcendence, we are too mired in our thoughts, wishes, dreams, fears, speculations, beliefs and conjectures – in other words, the whole muddle of having a mind – to see what consciousness is. The possibility that there is a zero state in physics, a virtual domain of pure potential from which all measurable events spring, is paralleled by the possibility that there is an absolute state of consciousness. Call it Brahman, Nirvana, or the day before Genesis, absolute consciousness is a state without qualities from which all the qualities

A rare experience of a moment at daybreak, when something in nature seems to reveal all consciousness, cannot be explained at noon. Yet it is part of the day's unity.

Charles Ives

of mind emerge.

As ancient as our belief in such a state may be, every observer of absolute consciousness has proved unreliable, on the simple basis that the absolute was considered a subjective experience. The sages and seers of Vedic India provided extensive, detailed theories of consciousness, as yet unrivalled by later experts. How did they know what they knew? By diving inward until they touched one of the subtle aspects of consciousness called 'knowingness'. Thus their knowledge was independent of anything outside themselves. Being possessed of knowingness, they would dispense with concrete proof. The problem with that is obvious. "I know what I know because I know" doesn't pass muster with science or philosophy, either. (Personally, I side with Nietzsche, who suspected that Socrates put up the sham of the dialectic – a method for logically arriving at transcendental truth – when in reality he intuited everything with no method at all!)

Quantum entanglement allows us to peer beyond these objections about unreliable subjectivity. If it is true that invisible forces penetrate time and space without being touched by time and space, then transcendence is real. The properties traditionally assigned to God – omniscience, omnipotence and omnipresence – are not abstractions. They appear to be running the universe. Electrons are under their sway; quarks are forced to listen to the voice of silence. By implication, the dividing line between subjectivity and objectivity must crumble, because two seemingly disparate things, a thought and the brain activity that parallels that thought, turn out to be the right and left hand of one entangled process.

The term 'entanglement' is somewhat misleading, however, because it implies confusion, like a tangled ball of yarn. **In reality entanglement matches things up and provides order and relationship instead of chaos. Once you have an ordering principle, randomness loses its perch as the dominant principle in Nature, replaced by the beauty and order humans have marvelled at since the beginning of recorded history.**



Figure 2. Neural Connections

Credit: SciencePhotoLibrary

Order, in turn, brings about unity. As someone remarked to me recently, consciousness is one mind with many bodies. Or, as Erwin Schrödinger said, "consciousness is a singular of which plural is unknown."

To a science, including medicine, the special branch of science I was trained in, the big stumbling block to any theory of consciousness has always been the brain. The simple sugars, water and whatnots of organic chemistry that constitutes the human brain aren't conscious. They can't think or observe. **Yet somehow a self-enclosed, sludgy porridge of grey matter is conscious. It not only thinks and observes, but one of the objects it is most fascinated to observe is itself.** A theory of consciousness has never emerged with any kind of satisfaction because nobody could explain the magical transformation of sugar in a sugar bowl into the sugars found in the brain, the one being totally inert and without life, the other being the utmost expression of life. I have confronted neuroscientists, who recently have begun to feel rather proud of their discoveries in the brain, and I asked them one question: "If I am looking at an apple or a sunset or anything else, where is that picture in my brain?" The brain has no light or images inside it. In fact, the only thing the brain does is exchange infinitesimal ions, faint electrical charges, and various salts. Nothing like the world of the five senses can be found anywhere in our

Amazingly when you add life and consciousness to the equation you can actually explain some of the biggest puzzles of science-Robert Lana

brains, and yet, through the miracle of consciousness, the whole visible, sensible world comes into being. When I pose this riddle, the neuroscientist's response is a shrug.

Baffled as researchers may be, there has always been an explanation for this magical transformation from matter to mind. As offered by the Vedic rishis, the explanation goes something like this: Everything one can call an experience occurs in consciousness, including the external world. **Since nothing can be known outside consciousness, we can confidently say that the universe exists in consciousness. One reality binds all things together, and the common ingredient of that one reality is pure consciousness, the flow of Being into the world of becoming.** In the West, on the rare occasions that anyone looked seriously at the rishis' argument, which forms the core of Vedanta, it was dismissed out of hand. **Here are the main objections in capsule form: consciousness exists only in the brain and is created by organic chemicals; subjectivity cannot be validated; just because it takes a conscious observer to experience the universe doesn't mean that the universe exists in the observer; objectivity trumps subjectivity every time.**

Now, thanks to quantum entanglement, we know that these objections are, at the very least, seriously flawed. Science has no legitimate right to trump Vedanta, because science is helpless to say how brain chemicals project the visible world, much less how consciousness was created out of matter. Vedanta offers the elegant argument that consciousness didn't need to be created. It is primal, innate and indestructible, beyond time and space, capable of penetrating the smallest and the largest things in creation.

Let's say I have a dream in which I am sitting by a window watching the passing scene outside. When I wake up, I realise that my dream was merely neural activity.

I might think I was sitting by the window for an hour, when in reality my dream took only thirty seconds. Now let's say that in real life I sit by my window and watch the passing scene for exactly an hour. In what way is that not also merely neural activity? Science says that dreaming and waking state are totally different.

Every time you are tempted to react in the old way, ask if you want to be a prisoner of the past or pioneer of the future

Deepak Chopra

Vedanta says that **they only appear different because of artificial distinctions. Both experiences took place in consciousness, and consciousness is one. It differentiates into various states that don't look alike to the human eye,** just as a molecule of glucose doesn't look the same, as the dream it helps to fuel. Yet the molecule and the dream are invisibly entangled.

Given the disdain in which science holds all worldviews other than its own, it's nice to point out that there is no theory of mind/brain better than the Vedanta model. Under the rubric of 'quantum consciousness', parallels have now been drawn between the inner and outer worlds. **But it's time to be much bolder and declare that there aren't two worlds, inner and outer. There is one reality which consciousness conceives, governs and creates.** Having done those things, consciousness enters its creation and merges with it. Those were spiritual concepts yesterday. Today we face the possibility that spirit was too narrow to encompass the all-embracing reality we want to explain.



Traditional Japanese nuron painting (Credit:trendhunter.com)

Note:-*Quantum Entanglement features in Resurgence issue 256, September/October 2009. This article is reprinted courtesy of Resurgence magazine – at the heart of earth, art and spirit. To buy Resurgence, read further articles online or find out about The Resurgence Trust, visit: www.resurgence.org <http://www.resurgence.org> All rights to this article are reserved to Resurgence, if you wish to republish or make use of this work you must contact the copyright owner to obtain permission.* -----

MOTHER EARTH: WESTERN GHATS -OUR UNCOMMON HERITAGE

Life Stream Team

We are indeed very happy to learn that the world Heritage Committee in its meeting held on 2nd July, 2012 in St. Petersburg, Russia has decided to inscribe 39 serial sites of the Western Ghats on the World Heritage List of UNESCO. Being one of the eight 'hottest hotspots' of bio-diversity in the world, there is no doubt that this will give a real boost to the current efforts, however feeble that may be, to protect its fragile ecosystem. Here we bring you an article on what is so special about the Western Ghats, and, whether declaring it as a World Heritage Site alone will be enough to protect it from human greed and wanton destruction in the light of the recently released Gadgil Committee Report commissioned by the Government of India on conservation and development of the Western Ghats.



Figure 3. The ghats

Credit: Keralatourism.org

Western Ghats or Sahyadri constitute a mountain range of 1600 km along the western side of India. Western Ghats are not true mountains, but are the faulted edge of the Deccan Plateau. It is considered to be older than Himalayas, and, stated to have more bio-diversity than it. These hills cover an area of 160,000sq.km .Included in the Western Ghats are 142 taluks in the six states of

Gujarat, Maharashtra, Goa, Karnataka, Tamil Nadu and Kerala, ending at the southern tip of India. Reports state that over 400 m people living in these states are directly or indirectly dependent one way or other on the Western Ghats for their livelihoods, drinking water and irrigation and other daily needs. It is here that *major* rivers like Krishna, Kaveri and Godavary originate and flow eastwards. Similarly, a number of smaller rivers originate here and flow westwards. Together these river systems form a complex riverine drainage system which drains 40% of India. The forests influence the Indian monsoon weather pattern.



Figure 4. Green Hornbill Valparai

Credit: Wikipedia

The Western Ghats is home to several endangered plants, animals, amphibians, fish and other life forms. **At least 325 globally threatened species occur here out of which 52 is facing extinction. It has more than 5000 varieties of flowering plants, 139 mammal species, 508 bird species, and 179 amphibian species. Many more remain to be discovered.**

We're in a giant car heading towards a brick wall and everyone is arguing over where they're going to sit

David Suzuki



Figure 5. Lion Tailed Macaque

Credit: Wikipedia

Facts and figures apart, how does it really feel to be inside the forest area in the Western Ghats? We bring you an extract from an article by Shri N.A.Naseer in Matrubhumi Weekly.

N.A. Naseer, nature lover, wild life- photographer, writer, trainer and activist who has been visiting the shola forests in the Western Ghats frequently, writes so poignantly about his experience---

“Sitting there on the rock I looked at the green memory of the shola forest spread before me-- This forest is like a moist, wet wall with fungus (moss) growth in the rainy season. It looked as though the trees were hugging each other and clinging together, not leaving an inch of space.

The western side of the Vantharavu Peak is like a huge wall with a thousand shades of green! (It seemed to me) that so many shades might not have touched the same colour ever before in nature! Even if you take a single tree you see leaves of many shades of green. The normal colour is green, but the tender leaves are not the same green as the disappearing green of the falling leaf. The green of the leaf in sunlight is so different from the green of the leaf in the shade...

“The meadow ends at the foot of the shola forest. I recognize the murmuring from the mysterious depth of the forest meant only for me, while standing still and silent, and, in all humility. I try to recognize the green fragrance, and try to touch and feel the breeze that caress the forest. With a firm resolution that no man shall climb to the shola from the meadow, the trees and the Kurinji plants on the border stand merging together, not leaving even a single channel. It could be a plot of self-defence weaved by them against man who violates all boundaries of nature!

Even after knowing that the shola is calling me, it is not clear to me as to why I should move away. I tried in vain retrieving my mind which had sunk deeply into the green ocean. The inner fear was that my footsteps would violate the sanctity of that holy place---

(Translated from Malayalam, Matrubhumi Weekly- July 8,2012)

The declaration to include Western Ghat in the list of World Heritage Sites and the implementation of the Gadgil Committee **Report have been opposed by the concerned states on the ground that all development activities in the areas included in the Western Ghats would come to a standstill.** There are already over 800 dams constructed across the rivers in the in Western Ghats. In addition, Kerala is clamouring for a new dam at Mullapperiyar and another hydro-electric project at Athirappally.

Nature shrinks as capital grows. The growth of the market cannot solve the very crisis it creates.
Vandana Shiva

Karnataka state is set to construct the Gundi hydro-electric project. Goa and Karnataka are worried about stoppage of mining activities and Maharashtra its industrial development, especially in Sidhu Durg and Ratnagiri districts. Lobbies and interest groups are pushing the agenda. But are they right?

The Central government in March 2010, appointed a 14 member- Expert Committee on Western Ghats, inter-alia, to report on the present status of its ecology and environment, to categorise the areas included in it as per the provisions of the Environment (Protection) Act, 1986, and, after discussion with the civil society, suggest steps for conserving and revival of its eco-system, recommend policy initiatives for setting up a Western Ghats Development Authority, and, to consider any related issue referred to it, in response to the requests received from NGOs, environmentalists and activists by the Government regarding special consideration to be given for its protection. Shri Madhav Gadgil was made the chairperson of the Committee.



I like trees because they seem more resigned to the way they have to live than other things do

Willa Silbert Cather

THE GREEN CONSTITUTION

The Committee submitted its report in September, 2011. However, the contents of the report were made public only after a nine-month delay, that too consequent to the orders of the Delhi High Court rejecting the Appeal filed by the Union Environment Ministry against the orders passed by the Central Information Commission to reveal its contents. The report was prepared after taking evidence as well as meetings and discussions the committee had with different interest groups.

The Report is in two volumes with more than 500 pages. It stresses mainly two things-categorising the entire area into Environment Sensitive Zones (ESZ), to make all developments environment-friendly and suggesting what should be the administrative arrangement to achieve the objective. The Committee has recommended categorising the entire area of Western Ghats into three zones-ESZ-1, ESZ-2 and ESZ-3. It has carefully listed what kind of activities can be taken up in each of these Zones.

Considering the unique environment of the Western Ghats, the Committee has proposed several steps to control or regulate human interventions in the different sectors including, agriculture, industry, forest management, protection of bio-diversity, use of water, energy, tourism, animal care, housing, mining etc. The Committee has listed out in detail what type of activities can be allowed in each of these Zones. How the environmental impact of these activities could be minimised has also been dealt with in detail. Further, it has proposed the setting up of Western Ghats Environment Authority to provide the necessary administrative back up. The powers, authority and organisational structure of the proposed authority have also been given in detail in the report. The report details how development could be combined with environmental protection and how this could be implemented with the involvement and participation of the people. The committee therefore has suggested that proposed Authority could be multi-layered to deal with the issues and problems.

Some minor criticisms have been raised against the report. One of the concerns is the basis of categorisation of zones, without considering socio-economic aspects, poverty, population growth and density, inequality, unemployment, changes in the

various sectors of the economy. The committee also needs to recognize that the source of many of the human interventions / violations lie outside the area. 'Develop sustainably and conserve thoughtfully' seems to be the core principle advised in the report. Despite these minor shortcomings, if implemented, this could turn out to be the Green Constitution of India on Environment.

With the decision to include 39 serial sites of the Western Ghats as a world Heritage Site a new era has begun wherein a profound change is happening in our thinking about nature and natural resources. The conservation of the Western Ghat's ecosystem depends on a fresh look at the models of development. To that extent the Gadgil Committee report could be a blue print of development, not only for the Western Ghats, for other such areas as well. However, experts are of view that categorising areas into zones, and, specifying activities that could be taken up in each and setting up of an Authority to oversee their implementation alone will also not solve the problems.

ECOLOGICALLY SENSITIVE ZONES (ESZ)

The Gadgil Committee in its report has categorised the entire area falling under Western Ghats into three ESZ –SEZ1, and ESZ-3. SEZ-1 is ecologically the most important zone. There conservation is more important than development. The existing National Parks, Wild Life Sanctuaries and the buffer zones around them are included in it. In ESZ-2 development is subject to restrictions and strict control, while in SEZ -3 the restrictions have been relaxed to some extent. Thus a layered approach is favoured by the Committee. Which activities could be allotted in the different sectors of development including agriculture, forests etc. have been proposed separately for each category. Some of the 'dos' and 'don'ts' proposed by the Committee include not to allow cultivation of GM crops, elimination of use of plastics in 3 years, conversion to organic farming within a given time-frame, ban on construction in water channels and other constructions in ecologically important areas, no new hill- stations, non- use of forest lands in zones 1and 2 for cultivation(it can be done in zone -3 subject to consideration of environmental impact), making building construction eco-friendly, water harvesting, waste-processing, use of alternate energy, and protection of water bodies. A host of other recommendations

combining environmental concerns with development have been also proposed. The committee has outlined the approach to development needed in all 51 districts included in the area of the Western Ghats, and, has proposed the administrative structure needed as back-up for their implementation.

At the macro level, far reaching policy changes, integrating development with sustainability, need to be made. While globalization has brought about some benefits to the people, economic considerations almost always out- weigh ecological considerations in the model followed. One question asked by the politicians who oppose the sustainability model of development is how can development take place if restrictions are imposed on the use of forest wealth, water, minerals and metals which are important for industrial development? The answer to this question is that we have to decide what kind of development are we visualising. Instead of



Athirapally water falls (credit: keralatourism.org.com)

Athirapally is one of the most breath-taking tourist spots in Kerala. Referred to as the Niagara of India, it attracts lots of visitors every year. The waterfall is positioned on the course of the Chalakudy River which originates from the upper reaches of the Western Ghats. The water fall comes falling down from a height of 80 ft. at this point.

Athirapally is located at the opening of Sholayar Rain Forest of Kerala. This region is also the habitat of four endangered Hornbill species. The state government has proposed setting up a hydro-electric project at Athirapally which is feared to upset its delicate ecological balance.

activities which destroy the environment, activities such as the ones protecting the land, regeneration of forests, revival of water sources etc. could be taken up in this area.



The local panchayats could focus on activities which are in tune with nature like eco-friendly housing and tourism. Development does not mean one that is only based on consumer culture.

Experience has shown that short term interests will destroy long term gains. **People do not realize that their very existence depend on the resources of the Western Ghats, and that once it is destroyed their own existence will soon end.** The benefits conferred by rain, rivers and forests cannot be equated with short term economic benefits. People are already facing water-crisis, the impact of destruction of rivers and water bodies, destruction of bio diversity, land- slides, soil erosion, health problems and a host of other issues.

It is clear that we cannot go on with the present model of development, instead, should follow a decentralised, ecological and ethical model which requires a fundamental change in our attitudes. But it is a big question whether human attitudes can ever be changed except at their own peril. **The declaration of the Western Ghats as a World Heritage Site is one thing. Protecting our uncommon heritage is another thing,** which requires enormous grit, political will and public support. Implementation of the Gadgil Committee Report could be a new beginning.

It is horrifying that we have to fight our own government to save the environment

Ansel Adams



Scenes from Wayanad-(Credit: Getty images)

ORGANIC FARMING: A SEASONAL REFLECTION ON THE SOUL FOOD SYSTEM

Jean English

This time we bring you another article relating to Organic farming from MOGFA (Maine Organic Farming Association). This time it is a reflection by Jean English based on a lecture by John Ikerd.



Figure 6. Organic Eggs

Credit: Photocase.com

Quiet winter days offer a good time to consider the spiritual aspects of how our food is grown. That spirituality of farming was central to John Ikerd's keynote speech at the Farmer-to-Farmer Conference held by the Maine Organic Farmers and Gardeners Association (MOFGA) and University of Maine Cooperative Extension in November. Ikerd is Professor Emeritus of economics at the University of Missouri, Columbia, and author of *Sustainable Capitalism; A Return to Common Sense; Small Farms are Real Farms; and Crisis and Opportunity: Sustainability in American Agriculture*. (See <http://web.missouri.edu/~ikerdj/>)

At Farmer-to-Farmer, Ikerd noted that sales of local foods in the U.S. are projected to reach \$11 billion by 2011, and organic food sales are now almost \$20 billion. Ikerd believes that the **growing popularity of local foods is the latest phase in a long trend that is fundamentally transforming the American food system** as consumers consider many

factors in choosing foods: freshness, flavor, safety, nutrition, supporting and trusting local economies and farmers, security, and reducing fossil energy use and greenhouse gas emissions. The Slow Food watch words good, clean and fair embody these principles, said Ikerd, as does the Chefs Collaborative promotion of the "joys of local, seasonal, and artisanal cooking."

The local food movement's quest for **food that has ecological, social and economic integrity** continues a movement begun in the '60s when back-to-the-land enthusiasts produced their own food, bought food at farmers' markets, and formed cooperative food buying clubs and natural food stores. The movement spread during the '70s and '80s, as more people became aware of potential health, environmental and social problems associated with industrial foods—and, more recently, of some nutrient deficiencies in industrial foods. Consumers became more selective about animal products in the late '80s amid concern about the widespread use of antibiotics and growth hormones in industrial livestock; about inhumane treatment of animals in large-scale confinement animal feeding operations (CAFOs); and about exploitation of family farmers and farm workers in large operations.

Organic farming was originally rooted in the values of biodynamic farming, articulated in 1924 when Rudolph Steiner said, "**Central to biodynamics is the concept that a farm is healthy only as much as it becomes an organism in itself – an individualized, diverse ecosystem guided by the farmer, standing in living interaction with the larger ecological, social, economic, and spiritual realities of which it is part.**" Biodynamic farming was clearly spiritual as well as biological, said Ikerd, adding that Steiner was concerned that **food grown on increasingly impoverished soil could not provide the inner sustenance needed for spiritual health.**

Organic pioneer and publisher J. I. Rodale wrote that the farmer "must realize that in him is placed a sacred trust, the task of producing food that will impart health to the people who consume it. As a patriotic duty, he assumes an obligation to preserve the fertility of the soil, a precious heritage that he must pass on, undefiled and even enriched, to subsequent generations." The soul of organics, said Ikerd, includes a social commitment to

In the spring, at the end of the day, you should smell of dirt

Margaret Atwood

family and community; spiritual values; ethical and moral values; integrity among people; and trust.

Recognition of these values is seen in the increased number of farmers' markets in the United States--from 1,755 to 4,385 between 1994 and 2006; in the increase in Community Supported Agriculture (CSA) farms from fewer than 100 in 1990 to an estimate of 1500 to 2000 now; in the growing number of discriminating restaurants, supermarkets and other retail food markets committed to sourcing as much food as possible from local growers; and in more and more public schools, colleges and hospitals that source local, healthful foods.

Ikerd thinks that our society is in a period that he calls The Great Transformation. The model for the sustainable, local food system of the future may resemble a multi-farm CSA or local food buying club, offering vegetables, fruits, meats, eggs, cheese, baked goods, flowers, soaps and herbs, with Web sites allowing producers to coordinate with consumers, and with local assembly and distribution systems (like UPS and Fed-Ex) to pick up products at local farms and assemble and deliver customer orders. Local food associations could maintain personal connections between farmers and customers through food events, farm visits and dinners at the farm. "Even regional, national or international networks of local food systems could offer personal relationships to connect communities," said Ikerd, "with the relationships within each of those communities ensuring the integrity of the system. (Gary Paul Nabhan offered a similar vision of a local food system seasoned with global/local connections at his keynote speech at MOFGA's Common Ground Country Fair in September.)

Ikerd said he's accused of being idealistic, but he sees today's industrial food system as unsustainable. **It requires some 17% of all fossil energy used in the United States and uses more than 10 kcals of fossil energy for each kcal of food energy it produces.** Also, farmers, farm laborers and food industry workers are among the lowest paid and most mistreated of workers, receiving few if any benefits. "Only a true organic agriculture, carried out by farmers who are committed to permanence, farming that has a soul to it, as well as efficiency in productivity, can provide long-run food security," said Ikerd. **Various organic farming strategies reduce fossil**

energy use by 30 to 60% and can sequester about 50% more CO2 and greenhouse gases than agriculture is releasing today.

Ikerd predicted that the food system will change as much over the next 50 years as it did in the past 50, "but if we're going to achieve that great potential that's there to recreate a system that has ecological and social integrity, then we have to reflect that integrity within our relationships with each other and our relationships with the earth. **We have to create a system of farming and a whole food system that reflects those ethical and social values if it's going to be economically viable over the long run.**"



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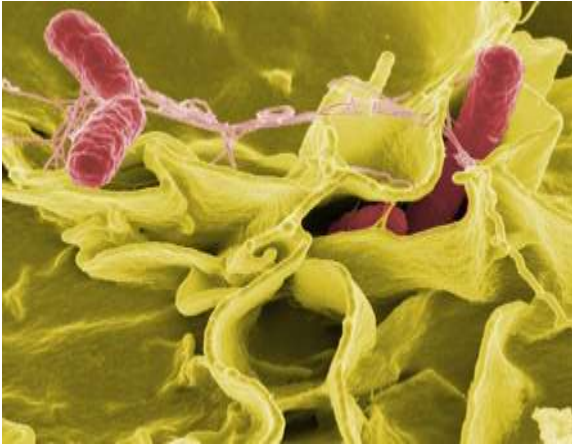
This article is provided by the Maine Organic Farmers and Gardeners Association (MOFGA), PO Box 170, Unity, ME 04988; 207-568-4142; mofga@mofga.org; www.mofga.org. Joining MOFGA helps support and promote organic farming and gardening in Maine and helps Maine consumers enjoy more healthful, Maine-grown food. Copyright2008

Industrial agriculture and the assumptions on which it rests are wrong, root and branch

Wendell Berry

SCIENCE: GUT FLORA

Life Stream Team



Most of us are aware only of the flora and fauna visible to the naked eye, but are either ignorant or unconcerned about the presence of over 100 trillion of micro-organisms present in our guts, which are collectively known as the gut flora. Human body has a unique health promoting team up to a thousand kinds of microbes. It is estimated that 500-1000 species of bacteria live inside the human gut. Scientific studies have shown that there is a symbiotic relation between the gut flora and the humans. While the host's gut provides a safe home to the micro-organisms to grow and multiply, they in turn perform a host of useful functions. Research shows that the gut flora can affect numerous processes in the body, including metabolism, energy production, nutrition, and genetic



expression. The gut flora also helps the

body in utilising unused energy substrates, supporting the immune system, preventing growth of harmful, pathogenic bacteria, regulating the development of the gut, producing vitamins for the host. Of course, some are pathogenic. We invite you to the fascinating world of our gut flora.

IDENTIFICATION

Populations of species within the gut flora vary widely among different individuals, although within the same individual they are generally stable over a period of time. Changes within the population may occur due to a variety of factors, including, changes in age, diet and lifestyle of the host. Species from the genera Bacteroides is reportedly constitute about 30% of the bacteria in the gut. Most of the bacterial groups identified belong to the genera Bacteroides, Clostridium, Fusobacterium, Eubacterium, Ruminococcus, Peptococcus, Peptostreptococcus, and Bifidobacterium. Other genera, such as Escherichia and Lactobacillus, are present to a lesser extent. The currently known genera of fungi of the gut flora include Candida, Saccharomyces, Aspergillus, and Penicillium. Other species are yet to be identified, as most cannot be cultured.



Escherichia coli, one of the many species of bacteria present in the human gut.

Earth worms are the intestines of the soil

Aristotle

Human Biome Project (HBP) is an initiative of the US National Institute of Health. The National Institute of Health with the goal of identifying and characterizing micro-organisms which are found in association with both healthy and diseased individuals. It is a five year project with a budget of \$115 billion. The components include culture-independent methods of identifying microbial community characteristics, and, use of techniques like meta-genomics as well as genome sequencing. This way a map of bacteria, viruses and other microbes that live in and on us is to be prepared.

DIET AND GUT FLORA

Research studies have shown that there is a correlation between the concentration of each microbial community and dietary components. Changes in host's diet can change the composition of the microbial communities as well. This has been demonstrated by conducting experiments using mice. It is reported that using several diets with different concentrations of fixed ingredients; a linear model could be developed to predict the abundance of each species as a function of diet.



According to scientists—`Diet may affect human health, partly by modulating the gut micro- biome composition. Humans coexist with their gut micro biota as mutually dependent, but sometimes this relationship may become pathogenic as obesity or diabetes, and factors including age, genetics or diet might trigger changes in that composition. Of these factors, diet is the easiest to modify, so it presents a simple route for therapeutic interventions. It has also been demonstrated that depending on the nutrients consumed in diet one type will dominate over the other. Gut micro biome can be changed by following a long-term

Gut flora consists of microorganisms that live in the digestive tracts of animals. The human body, consisting of about 10 trillion cells, carries about ten times as many microorganisms in the intestines. The metabolic activities performed by these bacteria resemble those of an organ, leading some to liken gut bacteria to a "forgotten" organ. It is estimated that these gut flora have around 100 times as many genes in aggregate as there are in the human genome

Bacteria make up most of the flora in the colon and up to 60% of the dry mass of feces Somewhere between 300 and 1000 different species live in the gut with most estimates at about 500 However, it is probable that 99% of the bacteria come from about 30 or 40 species. Fungi and protozoa also make up a part of the gut flora, but little is known about their activities. courtesy: Wikipedia, the free encyclopaedia)

diet. For instance, people whose micro biome is predominated by Bacteroides (diet based on high levels of protein and fat) and change their dietary patterns (diet based on high levels of carbohydrates), will get a Prevotella entero- type in a long-term. This relation may be interesting in medical field as the long term dietary interventions may allow modulation of an individual's entero- type to improve health.”

OBESITY

The microbes occupying the human gut have a direct relation to obesity. It is reported that a shift in the ratio between bacterial strains Firmicutes and Bacteroidetes is observed in lean and obese individuals. In the obese individuals a shift towards Firmicutes can be observed. ---`the ratio between Firmicutes and Bacteroidetes dynamically reflects the overall weight condition of an individual, shifting towards Bacteroidetes, if an obese individual loses weight.’ Other observations reported about obesity with reference to the gut flora on the basis of scientific studies are:-

- Obese and lean individuals have different gut flora composition.

*People would rather believe than know
— Edward O. Wilson*

- The gut micro biota of mice and humans are similar, with Firmicutes and Bacteroidetes types dominating in each respectively.
- Even though diet will affect gut flora composition, gut flora on its own has an effect on weight. Alteration of the gut micro biota can be an important part of a weight-loss program.
- Although obesity is considered hereditary, the importance of gut flora should not be underestimated. Flora is passed on from mother to child during birth, breastfeeding, and, early years. The child also comes in contact with microorganisms from other family members. "Obese gut flora" is passed on to the child.
- Children born via caesarean have double the risk of becoming overweight, according to research by Harvard scientists. The obesity increase has been linked to a lack of exposure to good bacteria which may be found in the vaginal wall.
- Differences in intestinal micro flora during the first year of life have been associated with higher risk of obesity later in life. Especially low levels of certain types of bacteria make children more susceptible to weight gain.
- Obese individuals usually have a dysfunctional gut flora with higher numbers of LPS-containing micro biota and methane-producing bacteria. LPS, Lipopolysaccharide, is linked to obesity, leaky gut and low-level chronic inflammation.(ref.naturalnews.com)

USEFUL FUNCTIONS OF GUT FLORA

Bacteria in the gut fulfill a host of useful functions for humans, including digestion of unutilized energy substrates, stimulating cell growth, repressing the growth of harmful microorganisms, training the immune system to respond only to pathogens, and defending against some diseases.

Some of the gut flora produces enzymes which humans lack. With the help of these enzymes human body is able to digest undigested starch, sugar, fibers etc. and also help to absorb lactose in

the case of lactose intolerance and sugar alcohols, mucus produced by the gut, and proteins.

Bacteria turn carbohydrates they ferment into by-products, including acetic acid, propionic acid and butyric acid that can be used by host cells, providing a major source of useful energy and nutrients for humans as well as helping the body to absorb essential dietary minerals such as calcium, magnesium and iron. Acetic acid is used by muscle, propionic acid helps the liver produce ATP, and butyric acid provides energy to gut cells and may prevent cancer. Evidence also indicates that bacteria enhance the absorption and storage of lipids and produce and then facilitate the body to absorb needed vitamins like vitamin K.

Proteins like enzymes, dead host and bacterial cells, and collagen and elastin found in food are also broken down by fermentation

Beneficial flora increase the gut's absorption of water, reduce counts of damaging bacteria, increase growth of human gut cells and stimulate growth of indigenous bacteria.

Bio flora increase growth of intestinal epithelial cells and control their proliferation and differentiation.

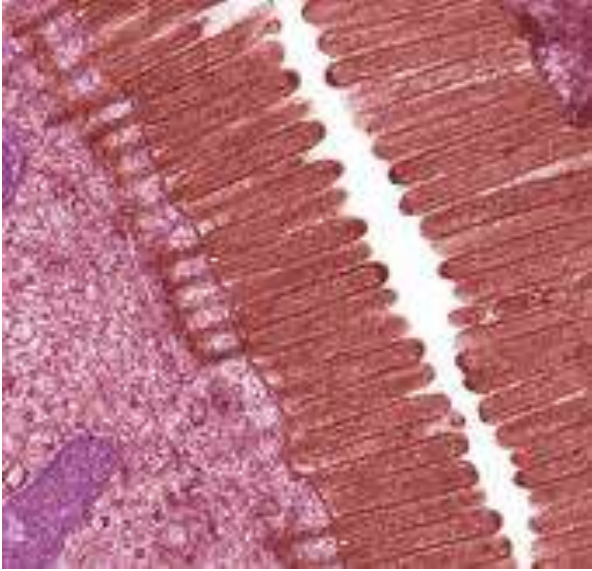
Another important role of helpful gut flora is that they prevent species that would harm the host from colonizing the gut. The barrier effect protects humans from both invading species and species normally present in the gut at low numbers, whose growth is usually inhibited by the gut flora.

Helpful bacteria prevent the growth of pathogenic species by competing for nutrition and attachment sites to the epithelium of the colon.



Pro-biotic foods

"Let food be thy your medicine"
— Hippocrates



Small intestine-section-Wikipedia

The process of fermentation, also serves to lower the pH in the colon, preventing the proliferation of harmful species of bacteria and facilitating that of helpful species.

IMMUNITY

Gut flora have a continuous and dynamic effect on the host's gut and systemic immune systems. As soon as an infant is born, bacteria begin colonizing its digestive tract. The first bacteria to colonize the gut are important in determining the person's life long gut flora makeup.

Recent findings have shown that gut bacteria play a role in the expression of certain receptors in the intestines, molecules that help the host repair damage due to injury.

The gut micro flora controls the intestinal epithelial cell differentiation and proliferation through the production of short-chain fatty acids. The gut flora plays a major role in metabolizing dietary carcinogens,

Bacteria are also useful in preventing allergies. Studies on the gut flora of infants and young children have shown that those who have or later develop allergies have different compositions of gut flora from those without allergies, with higher chances of having the harmful species.

Helpful gut flora stimulate the immune system and "train" it to respond properly to antigens, a lack of these bacteria in early life leads to an inadequately trained immune system that overreacts to antigens.

Gut bacteria can also help train the immune system in the prevention/management of the Inflammation of the Bowel System (IBD). The gut bacteria are also said to prevent other types of inflammation.(curtsey:wikipedia)

CHANGING THE FLORA BALANCE

The microbial balance is exceptionally sensitive to environmental conditions, beginning at birth. Children who are born with severely damaged gut flora are not only more susceptible to disease; they're also more susceptible to vaccine damage. Change in the balance of gut flora can affect the bodily functions in a variety of ways:

- Use of antibiotics can alter the numbers of gut bacteria. It is reported that use of broad-spectrum antibiotics, may affect the host's health and ability to digest food.
- Eating the meat of animals to which they were fed Antibiotics can cause antibiotic-associated diarrhea (AAD) by irritating the bowel directly, changing the levels of gut flora, or allowing pathogenic bacteria to grow
- Use of antibiotics increases the numbers of antibiotic-resistant bacteria .
- Changing the numbers and species of gut flora can reduce the body's ability to ferment carbohydrates and metabolize bile acids and may cause diarrhea.
- A reduction in levels of native bacterial species also disrupts their ability to inhibit the growth of harmful species.
- Gut flora composition also changes in severe illnesses due to several causes

Biology will relate every human gene to the genes of other animals and bacteria, to this great chain of being.

Walter Gilbert

- As pregnancy advances, the gut flora also changes similar to those seen in metabolic syndromes such as diabetes, although it causes no ill effects.

HARMFUL EFFECTS

Bacteria in the digestive tract have pathogenic properties in addition to their health-inducing ones and can produce carcinogens and toxins resulting in conditions such as multisystem organ failure, sepsis, colon cancer, and inflammatory bowel disease (IBD). A major factor in health is the balance of bacterial numbers; if the numbers grow too high or low, it will result in harm to the host. The balance is regulated by the host by producing necessary enzymes.

Some types of bacteria, such as *Bacteroides* and *Clostridium*, have been associated with an increase in growth rate of tumors. Helpful bacteria can be very harmful to the host if they get outside of the intestinal tract which occurs when bacteria leave the gut through its mucus lining. This can give rise to a number of different diseases. Diseases can also be caused by too much growth of bacteria in the small intestine, reduced immunity of the host, or increased gut lining permeability.

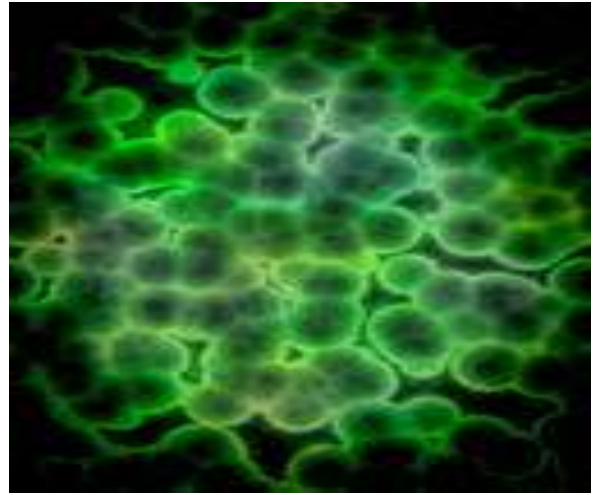
In diseases like Cirrhosis, the gut can become more permeable which is damaging in part due to the activity of gut flora. If the gut is perforated, bacteria can invade the body, causing a potentially fatal infection. Some suspect that IBD is due to a

‘Choice of foods can alter your micro flora in a matter of days, for better or worse. The ideal way to optimize your gut flora is to include fermented foods in your daily diet. While most probiotic supplements contain no more than 10 billion colony-forming units, one serving of fermented vegetables can contain 10 trillion colony-forming units of bacteria. Fermented foods also give you a wider variety of beneficial bacteria, so all in all, it’s your most cost effective alternative’

(www.natuaraalnews.com)

reduction in immune tolerance and subsequent overreaction of the host's immune system to harmful or non-harmful bacteria. IBD may be caused by the entire gut flora together or some

specific types. Some suspect that inflammation in IBD is due to increased permeability of the inner lining of the colon, which may allow bacteria to invade the tissues and cause an immune reaction that leads to prolonged inflammation. It has been suggested colitis is also caused by hat bacteria are since mice raised in a sterile environment do not get the disease,



(Courtesy; mercola.Com/wikipedia.org)

PHARMABIOTICS

Pharmabiotics is a generic term to encompass any form of therapeutic exploitation of the commensal flora, including the use of live probiotic bacteria, probiotic-derived biologically active metabolites, prebiotics, synbiotics or genetically modified commensal bacteria.

There is evidence to show that lack of bio flora in the guts can lead to diseases. Therefore, efforts to increase the population of gut flora assume significance. If the population and composition of gut flora can be factors contributing to the health of an individual, the reverse position also needs to be considered-gut flora can probably influence what one eats. This may, therefore play a part in making dietary choices.

For the first half of geological time our ancestors were bacteria. Most creatures still are bacteria, and each one of our trillions of cells is a colony of bacteria

Richard Dawkins

The use of probiotics helps in controlling inflammation in the gut, while prebiotics are dietary components that help the growth of microorganisms in the gut. **There is evidence that probiotic strategies help in treating mucosal inflammatory disorders such as IBD, atrophy, infection, diarrhea, cancer and arthritis. Fecal microbiota transplantation of donor feces.** Initial reports of treatment describe success rates of 90%, with few side effects. There is evidence supporting a therapeutic role for probiotic strategies for treating mucosal inflammatory disorders such as IBD, atopy, infection, diarrhoea, cancer and arthritis .

CONCLUSION

In the findings of a study reported in the Proceedings of the National Academy of Sciences suggest that—**“diet has a dominant role over other possible variables such as ethnicity, sanitation, hygiene, geography, and climate, in shaping the gut micro biota,”** `Researchers compared intestinal bacteria from children in the European Union and young villagers in remote Burkina Faso, and found enough differences to help explain disparities in chronic disease and obesity. The team studied the DNA of the gut bacteria of children in Burkina Faso, who are breast-fed up to age two and eat a diet rich in whole grains such as millet, legumes such as black-eyed peas, and vegetables. They eat very little meat. The Western diet, in contrast, is heavy in meat, processed grains, sugar and fat’.

`The Italian team found the African children had many bacteria that help break down fibre, but the European children were lacking these microbes. The ratios were similar to studies comparing the gut bacteria of lean people to obese people. The studies also indicate how the consumption of sugar, animal fat and calorie-dense foods in industrialised countries is rapidly limiting the adaptive potential of the micro biota’. Reduction in microbial richness is possibly one of the undesirable effects of globalization and of eating generic, nutrient-rich, uncontaminated foods.

"Western developed countries successfully controlled infectious diseases during the second half of the last century, by improving sanitation and using antibiotics and vaccines," the researchers write. At the same time, a rise in new diseases such as allergic, autoimmune disorders and inflammatory bowel disease,

both in adults and in children, has been observed.

Additional gut flora modifications can also be an important part of a weight-loss plan. A healthy diet with reduced consumption of sugar, processed carbohydrates, most vegetable oils, anti-nutrients, etc. will on its own promote weight loss and a healthier gut flora. Simply eating yoghurt will not make any substantial difference in most people. Minimally washed organic plants and plant products, fermented foods and probiotic supplements are all good sources of beneficial bacteria. Prebiotics, soluble fibre that feed good bacteria, can be found in leeks, onions, apples etc. (www.natuaturalnews.com)

SOURCES:

Wikipedia.org

www.natuaturalnews.com

www.abc.net.au/science/articles/2010

Bacteria are the dark matter of the biological world with 4 million mostly unknown species in a ton of soil

Edward O. Wilson

PERSONALITIES: HAZAR CHAURASI KI MAA

Mahasweta Devi, the renowned writer and social activist from West Bengal does not need any introduction. Her breed of writers, with their deep concern for the poor and the marginalised, are today considered old-fashioned and irrelevant in a fast moving modern world. However, she stands out as the face of truth and compassion to those who are still left with the sense and sensitivity to recognise and appreciate her writings as something out of ordinary. To know her is to respect her. Here our team attempts to draw a profile of Mahasweta Devi and her works.



BIOGRAPHY

Mahasweta Devi was born in the year 1926 into a literary Bengali family in Dacca, in east Bengal, which is modern day Bangladesh. Her father Manish Ghatak was a well-known poet and novelist. Her mother Dharitri Devi was also a writer and a social worker. Noted filmmaker Ritwik Ghatak was the elder brother of Manish Ghatak. Her initial schooling was in Dhaka, but after the partition of India she moved to West Bengal in India. ---“Mahasweta Devi was also influenced by her early association with Ganantya, a group which attempted to bring social and political theater to rural villages in Bengal in the 1930's and 1940's. After finishing a master's degree in English literature from Calcutta University, Devi began working as a teacher and journalist. Her first book, Jhansir Rani (The Queen of Jhansi), was published in 1956. This work also marked the beginning of a prolific literary career.

In the last forty years, Devi has published twenty collections of short stories and close to a hundred novels, primarily in her native language of Bengali. She has also been a regular contributor to several literary magazines such as Bortika, a journal dedicated to the cause of oppressed communities within India. In 1984, she retired from her job as an English lecturer at a Calcutta university to concentrate on her writing. In the last decade, Devi has been the recipient of several literary prizes. **She was awarded the Jnanpith, India's highest literary award in 1995.** In the following year, she was one of the recipients of the Magsaysay award, considered to be the Asian equivalent of the Nobel Prize.--,” (India.www.english.emory.edu) She was married renowned playwright Bijon Bhattacharya, however divorced him later.

Hajar churashir Maa Mahasweta Devi often wrote about the plight of those oppressed by the state for protesting against injustices perpetrated on them by the rich and the powerful, as also by the state. Nowhere it is so powerfully depicted than in her novel Hajar chaurashir Maa.

Hajar Churashir Maa (means Mother of number1084) is the poignant story of a mother whose son was brutally killed by the state because of his ideology. Govind Nihalani made this novel to a film called Hazaar Chaurasi Ki Maa in 1998 which won the National Film Award for Best Feature Film in Hindi.

Her important works include The Queen of Jhansi (biography, translated in English by Sagaree and Mandira Sengupta from the 1956 first edition in Bangla Jhansir Rani), Hajar Churashir Maa, Aranyer Adhikar (The Occupation of the Forest, 1977) and Agnigarbha (Womb of Fire, 1978). Films based on Mahasweta Devi's works include Sunghursh (1968), based on her story, which presented a fictionalized

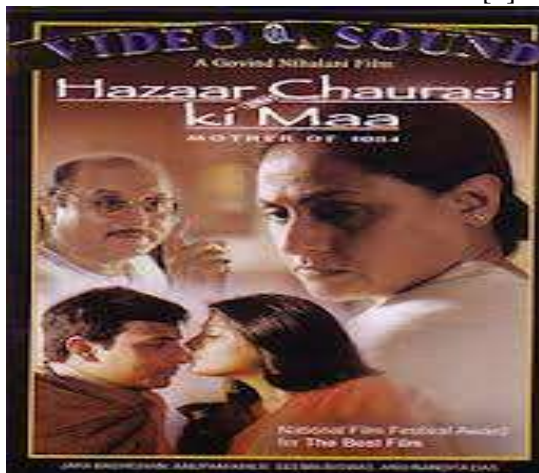
To read is to fly: it is to soar to a point of vantage which gives a view over wide terrains of history, human variety, ideas, shared experience and the fruits of many inquiries

A C Grayling, Financial Times

account of vendetta within rival gangs in the city of Varanasi, Rudaali (1993), Hazaar Chaurasi Ki Maa (1998) and Maati Maay (2006), based on short story Daayeen.

MAJOR AWARDS FOR MAHASWETA DEVI

- 1979: Sahitya Akademi Award (Bengali) : – Aranyer Adhikar (novel)
- 1986: Padma Shri
- 1996: Jnanpith Award : the highest literary award from the Bharatiya Jnanpith
- 1997: Ramon Magsaysay Award Journalism, Literature, and the Creative Communication Arts[5]



Courtesy:Wikipedia.com

- 1999: Honoris causa – Indira Gandhi National Open University (IGNOU)
- 2006: Padma Vibhushan - the second highest civilian award from the Government of India
- 2010:Yashwantrao Chavan National Award
- 2011: Bangabibhushan - the highest civilian award from the Government of West Bengal
- 2012: Hall of Fame Lifetime Achievement SAHITYABRAMHA - the first Lifetime Achievement award in Bengali Literature from 4thScreen-IFJW



Courtesy: explov.com

About her works In many of her works she takes a feminist view over the traditional view of women in Indian society---“Female characters in her works are borrowed from an older literary tradition, but are transformed to reveal a profound political self-awareness. In the short story “Dropadi,” Devi evokes the central female character from the classical epic Mahabharata, Draupadi, to tell a story of a fugitive tribal woman, also of the same name, who outwits the local police. Another short story, “Breast-Giver” (1993), is a symbolic comparison between a woman’s physical illness and the social illnesses extant in post independent India.

Unlike many Indian writers who prefer to observe life from a lofty distance, Mahasweta Devi is actively involved with human lives. She has worked with the Kheria-Shabar tribals in Purulia, West Bengal, for over a quarter of a century and speaks of them with passion. Totally committed to their cause, she donated her entire prize money from the Jnanpith and Magsaysay Awards to the organisation she has set up for the tribals.

Rudaali is a 1993 Hindi film directed by the feminist Indian director Kalpana Lajmi, based on the short story written by Mahasweta Devi. The title is a reference to a custom in certain areas of Rajasthan where women of a lower caste are hired as professional mourners upon the death of upper-caste males. These women are referred to as a "rudaali" (roo-dah-lee), literally translated as "female weeper" or "weeping woman".[1] Their job is to publicly express grief of family members who are not permitted to display emotion due to

*I have read more books than I have eaten food;the matter of my writing comes from there.Writing is activism for me-
Mahasweta Devi*

their social status.



(En.wikipedia.org)

The film is set in a small village in Rajasthan, India. It tells the story of a woman named Shanichari, who was abandoned by her mother shortly after her father's death. Bad fortune follows as she marries an alcoholic, who leaves her with little hope of a brighter future for herself and her mentally challenged son.

Throughout Shanichari's lifetime of misfortune she has never cried. This creates great difficulty once she is called to become a rudaali until Bhinkni, an experienced mourner, enters her life.[2] Shanichari and the local landlord's son fall in love with each other, but Shanichari is reluctant to ask the rich lover for money as she does not want to lower her love even for the sake of getting out of poverty and misery.

Dimple Kapadia won a National Film Award for her role of Shanichari in the film, Samir Chanda won National Film Award for Best Art Direction, and Simple Kapadia won the National Film Award for Best Costume Design.

Her views *In an interview published in www.rediff.com she stated---* “You see tribal rebellions are never mentioned in the history of the freedom struggle. This was the first time that the mainstream came to know about the tribal heroes, their rebellions.” To a question on integration of tribals with mainstream society, she retorted— “For people who do not know where their next meal is coming from, is it civilised to ask them that? She said that her goal is to “fight for the tribals, downtrodden, underprivileged, and write creatively if and when I find the time.”

Films The fact that some of her outstanding works like Hajar Churashir Maa and Rudali have been made into award-winning films, are a tribute to her profound feelings about fellow-beings and sensitivity as a writer.

CRITICAL ACCLAIM

Mahasweta Devi became a social activist of fame. She actively supported the struggles of tribals in states like Bihar, Madhya Pradesh and Chhattisgarh. These struggles became the background of many of her works. “---At the centre of a half-century of tumultuous change, the life of Mahasweta Devi has spanned the British period, Independence, and fifty years of postcolonial turmoil (in India). Her writing has given Indian literature a new life and inspired two generations of writers, journalists and filmmakers. A celebrated writer and tireless activist; for the last two decades, she has led a battle on the behalf of the De-notified tribes of India-indigenous groups who were branded “natural criminals” by the British Colonial State, who face discrimination to this day, despite being “de-notified.” Mahasweta Devi has recently been spearheading the movement against the industrial policy of the government of West Bengal, the state of her domicile. Specifically, she has stridently criticized confiscation of large tracts of fertile agricultural land from farmers by the government and ceding the land to industrial houses at throwaway prices. She has connected the policy to the commercialization of Santiniketan of Rabindranath Tagore, where she spent her formative years. Her lead resulted in a number of intellectuals, artists, writers and theatre workers join in protesting the controversial policy and particularly its implementation in Singur and Nandigram. At the age of 87 she still retains her spark and continues to be a mother to 1.2 billion people in India.

Time was the arch fugitive, always on the run.”

— Mahasweta Devi, *Mother of 1084*

ECONOMICS: (PART-2) GANDHI AND GLOBALISATION

In the last issue we brought you the first part of the article on Gandhi and Globalisation- Part-1. In this issue we present you Part-II of the same, elucidating Gandhi's views on issues like equality and social justice, decentralisation, Trusteeship etc. which have a bearing on globalisation.

ON EQUALITY AND SOCIAL JUSTICE

Gandhi was concerned about the up-liftment of the weak and enrichment of human life rather than attaining a higher standard of living, with scant respect for human and social values. **If mankind was to progress and realise the ideals of equality and brotherhood, it must pay attention to the prime needs of the weakest sections of the population.** Everybody should be given the right to earn according to his capacity, using just means. The rich should serve the society after satisfying their needs.

TALISMAN

I will give you a talisman. Whenever you are in doubt or when the self becomes too much for you, apply the following test. Recall the face of the poorest and weakest man whom you have seen, and ask yourself, if the step you contemplate is going to be of any use to him, will he gain anything by it? Will it restore him to a control over his own life and destiny? In other words, will it lead to Swaraj (self-rule) for the hungry and spiritually starving millions? Then you will find your doubt melting away.

“My ideal is equal distribution, but so far as I can see, it is not to be realised. I therefore work for equitable distribution.” “I suggest that we are thieves in a way. If I take anything I do not need for my immediate use, and keep it, I thief it from somebody else. I venture to suggest that it is the fundamental law of nature, without exception that nature produces energy enough for our wants from day to day, and if only everybody took enough for himself and nothing more, there would be no pauperism in this

world, there would be no man dying of starvation in this world.’

“No one has ever suggested that grinding pauperism can lead to anything else than moral degradation. Every human being has a right to live, and, therefore, to find the wherewithal to feed himself and where necessary to clothe and house himself. But for this very simple performance we need no assistance from the economists or their laws.”

“The rich cannot accumulate wealth without the cooperation of the poor in society. If this knowledge were to penetrate and spread amongst the poor, they would become strong and would learn how to free themselves by means of non-violence”. **Gandhi was averse to all notions of class welfare and concepts of class-based revolution, which he saw as causes of social violence and disharmony.** Gandhi's concept of egalitarianism was centred on the preservation of human dignity, rather than material development. Gandhi's economics places importance to means of achieving the aims of development-means should be non-violent, ethical and truthful in all economic spheres'. - “Throughout his life Gandhi sought to develop ways to fight India's extreme poverty, backwardness and socio-economic challenges as a part of his wider involvement in the Indian independence movement”.



“Dear Mr. Gandhi, We regret we cannot fund your proposal because the link between spinning cloth and the fall of the British Empire was not clear to us.”

Written by M. M. Rogers and illustrated by Peter E. J. Jones. Reprinted by permission of the author. © 1994. Creative Commons Attribution-NonCommercial-ShareAlike license.

(Cartoon above)---Dear Mr. Gandhi, we regret we cannot fund your proposal because the link between spinning

Economics has never been a science - and it is even less now than a few years ago

Paul Samuelson

cloth and he fall of the British Empire was not clear to us. World press.com)

DECENTRALISATION

Gandhi opposed the state as he saw the state represented violence in concentrated and organised form. He believed that decentralisation was the key to world peace. He states “Power resides in people; they can always use it at any time”. He advocated that every individual should take steps towards self-rule or Swarajya in their life. Gandhi’s vision of a free India, writes Satish kumar, Editor of Resurgence Magazine, was not a nation state, but a confederation of self-reliant self-employed people living in village communities, deriving their right to livelihood from the product of their homesteads.



According to Swadeshi whatever is produced in the village must be used first and foremost by the members of the village. Swadeshi avoids economic dependence on external marketforces that could make village communities vulnerable. It avoids unnecessary, unhealthy, wasteful, therefore environmentally destructive transportation. The village must build a strong economic base to satisfy most of its needs and all members of the village community should give priority to local goods and services. Local based economy enhances community spirit, community relationships, community well-being. Members of the village community take care of themselves--- ‘If we look at the global banking crisis it is evident that decentralisation is key to providing finances at the local levels. Huge investment banks operating globally will in no way able to forestall similar kinds of crisis. Had there been decentralisation in this sector, crisis, if any, would have been small, and its impact confined to a limited area and

affecting a smaller number of people. A decentralised economy similarly would have been beneficial to the people, causing minimum damage to the system. Gandhi’s views on decentralisation, if accepted in the context of globalisation, will have a powerful and immediate impact on the life of people everywhere.

ON SIMPLE LIVING

Today we live in a world of consumerism based on greed and avarice. `Gandhi advised all to cut down on wants and emphasised the merits of self-reliance. According to Gandhi, attaining a basic standard of living includes only material and physical standards of food, clothing, and housing, whereas, a higher standard of life on the other hand would be attained only if, along with material advancement, there was a serious attempt to imbibe cultural and spiritual values and qualities’.” It is open to the world to laugh at my dispossessing myself of all property. For me this dispossessing has been a positive sign. I would like people to compete with me in my contentment. It is the richest treasure I own. Hence perhaps right to say that though I preach poverty I am a rich man.”

TRUSTEESHIP

Gandhi is often portrayed as a capitalist, but Gandhi considered himself as a firm believer in socialism-- that too the socialism of a radical kind. According to him the goals of socialism are to be achieved through non-violent means. His quarrels with the communists were about the means, not the end. Gandhi believed that “Bringing all means of production under public ownership creates enormous concentration of power; the communists have not evolved a satisfactory method of dealing with power”. Trusteeship was Gandhi’s answer to the problem of power”. By Trusteeship he meant -- “The rich man will be left in possession of his wealth, of which he will use what he reasonably

It has been more profitable for us to bind together in the wrong direction than to be alone in the right one

Nassim Nicholas Taleb

requires for his personal needs, and will act as a trustee for the remainder, to be used for society. In this argument honesty on the part of the trustee is assumed” To the capitalists he said “---we invite the capitalist to regard himself as a trustee for those on whom he depends for the making, the retention of, and increase of his capital”

Again if we look at the debate between opposing groups and political parties on the merit of taxing the rich, we shall be able to appreciate the principle of Trusteeship advanced by Gandhi, as **the rich voluntarily act as a trustee and uses wealth beyond their needs for helping the needy. We have Bill Gates and Warren Buffet from USA as living examples illustrating the relevance of this idea.**

CONCLUSION

If we carefully go through what Gandhi had to say about economics, we will realise that it would be incorrect to dismiss his views being rooted in the past. `To be sure there were certain attributes of Indian civilisation like the recognition of the dangers of multiplication of human wants and the need to restrain that he admired and wished his countrymen to forsake. **His face and feet were firmly turned towards the future and not towards the past.** Spinning and Charkha were symbols of patriotism and nationalism. Sarvodaya (enlightenment for all), voluntary land distribution, trusteeship and cooperation were some of the instruments through which Gandhi’s views were tested on the Indian soil.

Gandhi, throughout his life, stood up for upholding the rights of women, the under privileged and the weak. In doing so he was much ahead of his times.

Last century witnessed the rise and fall of communism. This century is witnessing the crisis in capitalism. Gandhi’s approach to economics includes the best of both systems, while rejecting their bad aspects. *Individualism and social justice both find a place in Gandhi’s economics without hurting each other.* Gandhi’s views on economics turns the conventional wisdom upside down. If we have to face the current economic crisis boldly, we have to recognize the merit in Gandhi’s well-thought out arguments favouring **a human- centric economics and one based on all-round development of the individual through collective**

thought and action. As noted by E F Schumacher, *the affluence of a small part of the world was pushing the whole world into three concurrent crises concerning resources, ecology and alienation.* According to Schumacher, Gandhi expressed his thoughts on economics in the language of the people, rather than that of academic economists.” And so the economists never noticed that he was, in fact, a great economist in his own right and it may well emerge ---[as]--the greatest of them all.”

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We have always known that heedless self-interest was bad morals, we now know that it is bad economics

Franklin Delano Roosevelt

POEM: THE ROAD NOT TAKEN

S. Jalaja

The expression “Road Less Travelled” is commonly used to describe a situation where one is required to choose between two options, and one opts for a difficult and lonely path not commonly chosen by most people. Robert Frost, the great American poet, is the author of “The Road Not Taken”, America’s best loved poem. The poem was not titled “The Road Less Travelled” as is generally believed. In fact, this expression is included only in the penultimate line of the poem.

An insight into the significance of the poem and the context in which it was written has been brought out lucidly by Mathew Hollis in his article entitled ‘Edward Thomas, Robert Frost, and the Road to War’ published in the Guardian dated 29th July, 2011. The article sketches the deep friendship, affection and regard Frost, an American, and, Edward Smith English-Welsh had for each other.

Robert Frost and Edward Smith met in London in 1913, when neither had yet made his name as a poet. Frost went to England to launch himself as a poet. He was a free-spirited man deciding to leave the American soil for England, on a whim, while Smith was always indecisive, hesitant and tormented by self-doubt.

While living in Gloucestershire in 1914, Frost frequently took long walks with Thomas through the country side. ‘Repeatedly Thomas would choose a route which might enable him to show his American friend a rare plant or a special vista; but it often happened that before the end of such a walk Thomas would regret the choice he had made, and, would sigh over what he might have shown Frost, if they had taken a better direction. More than one occasion, the New Englander had teased his Welsh- English friend for those wasted regrets.’ The article also describes another incident involving a game keeper who objected to their alleged trespass into his property and his attempt to shoot them for the alleged offence. When a gun was raised by the game keeper a second time, both friends beat a retreat. Smith was overcome with shame about his own cowardly behaviour before his friend, in response to the game keeper's act.

Smith suffered from periodic depression. The only person who could offer solace to him was Frost. In turn it was Smith who helped Frost build up his reputation as a poet, by publishing raving reviews of his poems. In turn Frost helped Thomas` release the poet from within himself. ‘They became close and vital for to the others success.’ When England declared war against Germany in 1914, Smith planned to move to America with his friend. However, as usual, Smith was indecisive. Frost fled from England to the safety of New Hampshire taking Smith’s son along with him, hoping that the other members of the child’s family would follow. For quite some time Smith could not choose between living peacefully in the US in the company of Frost and choosing to enlist for fighting war in France.

Frost wrote the poem ‘The Road Not Taken’, with Smith very much in his mind. When they were together earlier, Frost used to tease Smith “No matter which road you take, you will always sigh and wish you had taken the other”. But the irony of the poem was completely lost on Smith, for, he did not take it kindly. Although the poem was only meant to tease Smith and it was not the direct cause of Smith enlisting for war, nevertheless, he was prompted to overcome his inner conflicts and finally take the plunge under its influence. He was killed on the first day of the battle of Arras in 1917. As far as Frost and Smith were concerned, “A war, a games keeper and a road not taken came between them, but, they had altered one another’s lives irrevocably”. Later on, when asked about the final lines of the poem Frost had said “you have to be careful of that one: it’s a tricky poem-very tricky’. Thus wrote Robert Frost on his own poetry: "One stanza of 'The Road Not Taken' was written while I was sitting on a sofa in the middle of England: Was found three or four years later, and I couldn't bear not to finish it. I wasn't thinking about myself there, but about a friend who had gone off to war, a person who, whichever road he went, would be sorry he didn't go the other. He was hard on himself that way." (Bread Loaf Writers' Conference, 23 August, 1953). It also makes us wonder the poem is about the parting of ways by the two friends, each choosing his own destiny. We do hope this` human and realistic poem’ often (mistakenly) described as an inspirational call to non-conformity’ will prompt the readers to reflect deeply on every line of it and discover its true intent, meaning and depth.

THE ROAD NOT TAKEN

Two roads diverged in a yellow wood,
 And sorry I could not travel both
 And be one traveller, long I stood
 And looked down one as far as I could
 To where it bent in the undergrowth; 5

Then took the other, as just as fair,
 And having perhaps the better claim,
 Because it was grassy and wanted wear;
 Though as for that the passing there
 Had worn them really about the same, 10

And both that morning equally lay
 In leaves no step had trodden black.
 Oh, I kept the first for another day!
 Yet knowing how way leads on to way,
 I doubted if I should ever come back. 15

I shall be telling this with a sigh
 Somewhere ages and ages hence:
 Two roads diverged in a wood, and I—
 I took the one less travelled by,
 And that has made all the difference. 20

- Robert Frost

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ART & CULTURE: DIEGO RIVERA AND HIS HYMN TO THE EARTH



SURESH KUMAR

Diego Rivera is considered to be the father of Mexican mural art. He is also called the best known artist of Latin America. Diego Rivera interpreted Mexican history from a revolutionary and naturalistic point of view which made him a controversial figure outside his own country. Rivera was a Marxist idealist, like many young intellectuals of that period. Although called 'a political militant and eccentric spirit of his age', 'he played prime role in an outstanding period in Mexican history'. He was an artist extra-ordinary who painted murals on social themes which would 'directly speak to the people'. Some of these were painted on public spaces. He firmly believed that art should reflect the lives of the working class and native people of Mexico. Here we introduce to you the famous murals he painted on the ceiling vaults and walls of the old chapel in the Autonomous University of Chapingo, dedicated to Mother Earth.

Diego Rivera was born in Guanajuato in Mexico and he had his education in Mexico City. Between 1907 and 1921 he studied painting in Europe. After returning to Mexico in 1921, he started working for the revival of mural paintings in the country. **By painting frescoes on the walls of public buildings depicting Mexico's history and social issues he endeavoured to bring art as close as possible to the life of ordinary people.** His paintings were greatly influenced by indigenous Mexican art. His murals are simple and bold and depict social themes that aroused much controversy among political and religious groups, both in USA and Mexico.

Some of the stunning murals ever painted by Rivera are housed in Capilla Riveriana in the campus of Chapingo Agricultural University. The

Autonomous University of Chapingo is an agricultural college located at Texcoco, Mexico City in Mexico. These murals are the main attraction for visitors to the university. 'The building was one of the original structures of a Jesuit hacienda from the colonial period, and the Rivera murals transformed what was once its religious chapel'

Below: Agricultural University of Chapingo, Mexico



"Marx made theory... Lenin applied it with his sense of large-scale social organization... And Henry Ford made the work of the socialist state possible."
— **-Diego Rivera**



Figure 7. Self Portrait 1930

In the old hacienda chapel, which is now the Ceremonies Room is a mural by Diego Rivera called *Tierra Fecundada* (fertile land). It covers an area of over 700sq.m. The work is in three parts—the left panel depicts man’s struggle to have land, the right panel shows evolution of Mother Earth and the central panel shows communication between man and earth.’’ The murals were painted between 1924 and 1927 and document the social struggles endured by the Mexican people through Revolution and agrarian reforms, and the necessity to incorporate scientific advancement in the cultivation of the land... **The murals are also a hymn to Nature, the Earth, as well as Pre-Hispanic culture in Mexico, and the indigenous traditions of cultivation.**’

‘His Hymn to the Earth at Chapingo is earthy. Here a woman may turn into a tree, but she does not sprout branches or reach upward like Daphne. Rather she grows a trunk and remains rooted in the earth. Even Rivera’s flames painted on the ceiling vaults look like earth-bound lilies or cacti, and the petal-like licks of fire that surround the window in Zapata and Montaña Beneath the Earth blaze downward toward the cornfield that is fertilized by the two revolutionaries’ deaths ‘.



Figure 8. The Liberated Earth with powers of Nature controlled by Man-North wall 1926-27

Credit: wonderfuloilpaintings.com



Figure 9. Blood of the Revolutionary Martyrs Fertilizing the Earth 1926-East wall Credit:Flicker.com





Figure 10. *Subterranean forces* In the mural cycle of the Chapingo Chapel, Diego Rivera returns to the female figure as the fertility of nature, in which the woman's body and the landscape coincide

Credit: wonderfuloilpaintings.com



Figure 12. *Germination*

Credit:Oceanbridge.com



Figure 11. *The Abundant Earch*

Pinrest.com:

Credit:



Figure 13. *Land's bounty rightfully possessed*

Creditwww.freeart.com:

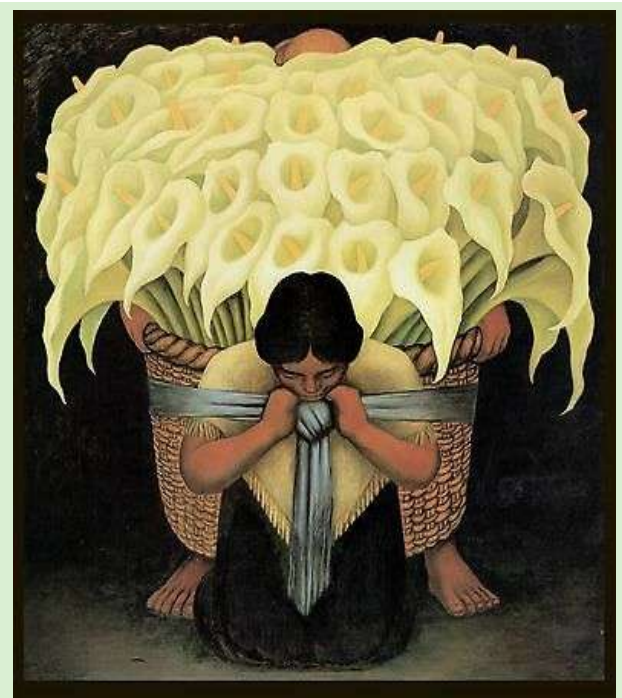
A Visit

One of the Life Stream team members, who wished to remain anonymous, spoke to us about the 'Hymns to the Earth' by Diego Rivera. She recalled thus 'I was on a visit to Mexico in connection with a FAO project in 1980. I was the guest of the International Maize and Wheat Research Station (CIMMYT), Mexico. One evening, after the day's work, I went out with an Indian colleague Junagadh and Conchita, his Brazilian girlfriend to see what Mexico had to offer. It was late evening and darkness was descending fast. Suddenly we landed in front of an old Chapel like building. Its doors were closed for visitors. "OH! What a pity!! It's closed. She will miss Diego Rivera's murals', exclaimed Conchita. Little did I know who Diego Rivera was, and what this visit was about.

Conchita disappeared briefly and came back along with someone who opened the chapel door for us. I didn't expect to see what I saw there in the subdued light inside the chapel -the frescoes by the famous Mexican Painter and Muralist Diego Rivera. For, painted on the ceiling and the walls, were his murals dedicated to Mother Earth. I then remembered that years back I had seen Michael Angelo's paintings on the ceiling of the Sistine Chapel in St. Peter's Church, Rome. 'While those at Sistine Chapel were sublime and divine, these frescoes by Diego Rivera at Chapingo were raw, earthly, in deep colours and full of life. Instead of seeing, I experienced the murals, for, they were not for the eyes but your soul', she said. "The visit is still etched in my memory". She prompted us to include this article in this issue for the benefit of readers who have not heard of Diego Rivera.



This is what Rivera had to say "My homecoming aroused an aesthetic rejoicing in me which is impossible to describe," wrote Diego Rivera later. "It was as if I had been reborn; [. . .] I found myself at the centre of a plastic world, in which colours and forms existed in total purity. Everywhere I saw a potential masterpiece - in the crowds, the markets, the festivals, the marching battalions, the workers in the workshops, the fields - in every shining face, every radiant child.



The flower vendor (Credit; worldpress.com)

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The artist must try to raise the level of taste of the masses, not debase himself to the level of unformed and impoverished taste

Diego Rivera

FOOD & DIET: MAKHANA -FOOD OF GODS

J. Sinha

Makhana (Euryale ferox), also known as Gorgon Nut/Fox Nut/Kanta Padma is a seasonal aquatic cash crop which grows in lowland ponds in parts of Bihar, Orissa West Bengal and Assam. The plant is also cultivated in China, Japan and Korea. It was once distributed in India, covering a long range from Kashmir to Manipur alongside the Himalayan stretch, from North-West to Far East. Now its distribution has been confined within Bihar. North- East Bihar accounts for 90% of Makhana production in India and is cultivated in several districts. However, the total area cultivation in Bihar has come down from 96,000 Ha in 1990-91 to 20,000 Ha at present. With an annual average production of 50,000 T and estimated market of Rs.500crore/annum, India exports Makhana to West Asia, US and some European countries.



Figure 14. Makhana Credit: Wikipedia.org

Makhana belongs to family Nymphaeaceae- the Water Lily family. The plant grows in fallow wet lands of standing shallow water, 2.5m in depth. It has a rhizomatous stem which is submerged in water. It grows best in locations with hot, dry summers and cold winters. It prefers tropical and sub-tropical climate with

temperatures varying from 20 to 35 degree centigrade.

Cultivation of Makhana is the main support for livelihood of poor people. Makhana- cultivated water bodies are also used along with fish culture. A group of farmers locally known as Mallahs -a fishing community- is traditionally skilled in Makhana cultivation and processing. The plants die out after the crop matures. Harvesting and processing the ready- to- eat white puffy seeds from black hard nuts by roasting in hot earthen ovens are cumbersome. Cultivation of makhana is difficult as it grows in natural water bodies of 4-6 ft depths, a result of which crop production has fallen in recent times. Attempts are now made to inter- crop it with Paddy, Berseem and wheat. The crop is harvested in 5-6 months before the onset of winter. **Makhana, after harvesting, leaves lot of organic matter-biomass behind.** The seeds are collected in late summer and early autumn.



Figure 15. Makhana Growth Credit: Wikipedia.org

Makhana as a food item: - Makhana may be eaten raw or cooked. In Punjab and western parts of the country it is roasted or fried which causes it to pop up like pop-corn. Makana kheer is popular in Bihar and other parts of the country. In the North-East Makhana is used as a vegetable. You only need to look at the internet to see the sheer number of food items that can be prepared with makhana. It is popular as a fasting food item. **It is considered an auspicious offering to gods/goddesses during festivals. It is**

*Keep a green tree in your heart and
perhaps a singing bird will come
Chinese proverb*

therefore known as the food of gods. In Mthilanchal, where it is grown extensively, Kheer made of Makhana is very popular.

Nutrition: - It is a fat-free organic food, and, therefore has a good potential for export to foreign countries. According to information given in the internet (livestrong.com) it has 82.5% carbohydrate, 4.8% fat and 12.7% protein. Others estimate between 76-80% carbohydrate 9-10% protein, 12.8% moisture 0.1% fat, 0.5% minerals, 0.9% phosphate 1.4% iron per 100gm.

Medicinal uses: - Seeds of Makhana are used in Ayurveda preparations, as it is said to alleviate vata and pitta doshas. It is believed to be good in the treatment of arthritis, heart diseases, and anaemia. It is used as aphrodisiac and is used in vajikarana therapy. Seeds of Makhana are also used in traditional Chinese medicine.

Other uses :- Makhana is used in religious ceremonies. It is used as starch for coating Benares saris.

Food preparations Makhana is used in the preparation of pop corns, Green peas and Makhana kababs, Makhana- pulav, Makhana- namkeen, Makhana- paneer and a variety of sweet dishes, including makhana laddoo.



Figure 16. Makhana Flowers *Credit: Bitterrootrestoration.com*

SALT AND PEPPER MAKHANA



Figure 17. Makhana Crisps

Credit: myedible.blogspot.com

Heat ghee or butter in a wok and stir-fry Makhana for a few minutes till it turns crisp. Thereafter sprinkle sea- salt and freshly grounded pepper on it.

MAKHANA KHEER (PUDDING)



Figure 18. Makhana Pudding

Take 100gms of Makhana and fry it in one tea spoon ghee in a wok. Add one table spoon of sugar (you can use sugar substitutes which could be added after the preparation of the kheer) and five cups of milk and allow it to boil. When milk is reduced to half its quantity, reduce heat. Add blanched and chopped almonds, and pistachios. Allow them to be cooked. Sprinkle cardamom powder after taking out from the stove. The kheer can be used hot or chilled.

God gives the nuts, but he does not crack them

Franz Kafka



TRAVEL: KINNAUR-THE LAND OF CELESTIAL SINGERS

Valsala B. Wariyar

According to Hindu mythology, Kinnaur in Himachal Pradesh, India is known as the land of the celestial singers or Kinners. The sacred Kinner Kailash is believed to be the winter abode of Lord Shiva, as well as the centre of the earth. Pandavas were believed to have spent the last days of their journey to heaven on the Kailash Mountain. Poet Dwarka Prasad Maheswari, Inspired every child who by-hearted his poem 'If I were the Kinner Naresh' to secretly nurture the dream to become the Raja of Kinnaur. The ethereal beauty of this place cannot be just imagined by reading about it. It has to be experienced by one self by physically being there. Here Valsala .B writes about her memorable visit to Kinnaur along with her sister. Smt Valsala is a freelance writer settled in the US.



Figure 19. Kinner Kailash during monsoon

Credit: Wikipedia.org

When we were children we were told stories about Yakshas, Gandharvas, and **Kinners who were considered to be celestial beings half way between Gods and men**. However, they never were believed to have dwelled amongst the earthly beings. We also had calendars hung on the walls of our home depicting various Gods and goddesses in the back drop of snow- capped mountains with picturesque valleys, and gurgling rivers. At that time never did we dream about visiting one of such places in future. **Our decision to travel all the way to Kinnaur was in a way a fulfilment of a childhood fantasy.**



We started our journey to Kinnaur on a cold autumn night. We travelled by train from Old Delhi to Shimla by-Kalka Mail. After resting for a while in Shimla, we started for our first destination –Narkanda known as the Gate way to the Apple country of Himachal. Narkanda is 65 km from

Do not be angry with the rain; it simply does not know how to fall upwards
— Vladimir Nabakov

Shimla and is situated at an altitude of 2708 m on the Hindustan-Tibet Road (NH-22). Narkanda offers a spectacular view of snowy peaks, apple orchards and pine forests. We stayed in the Circuit House in Narkanda, surrounded by deep green Pine groves.



The room we stayed gives a panoramic view of the snow peaks. **It was heartening to note that in all important tourist destinations Himachal Tourism Development Corporation had set up quality hotels, resorts and cottages available at reasonable prices, offering good food.** The food they served in the circuit House was excellent. We had a taste of green almonds fresh from the orchards around.



Figure 20. Circuit House in Narkanda

Credit: Wikipedia.org

After enjoying the scenic views of Narkanda, just after breakfast, we proceeded to Rampur, 134 km from Shimla which was once the capital of the princely state of Bushhar, located on the left bank of Sutlej river. You meet the river after descending from Narconda. Rampur was one of the major trade centres on the old trade route to Kinnaur,

Ladakh, Tibet and China. We had our lunch at the PWD Guest House, and, thereafter, we started for Sarahan about 180 km from Shimla at an altitude of 2165 m. We visited the 12th century Sarahan Devi Temple dedicated to mother goddess Bhimkali, presiding deity of the rulers of former Bushahr state. It is renowned for the immediate



Figure 21. Berries

Credit: Wikipedia.org

fulfilment of wishes.

It is believed to be one of the 51 Sakthipiths. The temple, with its unique architecture, is made of wood. The tall tower like structure and unusual roof of the temple dominate the complex. You have to climb several circular steps to reach the top where the idol is placed. The temple belonged to the royal palace and was worshipped by the ruler in ancient times. Bhimkali Temple is the first locally constructed temple that shows a fusion of Buddhist and Hindu architectural styles. Although it is a twin temple, only one is open to the public as the old temple is locked. The wood carvings in the temple are very intricate. From Sarahan we continued our road journey to Kinnaur, along the bank of River Sutlej.

Our task must be to free ourselves... by widening our circle of compassion to embrace all living creatures and the whole of nature and it's beauty

Albert Einstein

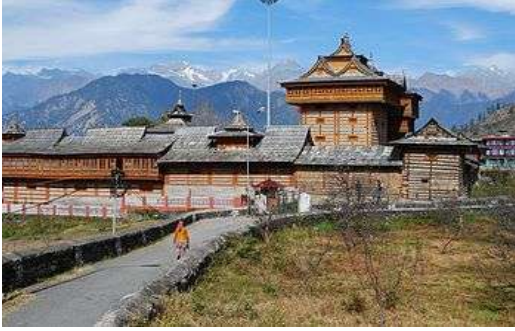


Figure 22. Bimkali Temple, Sarahan

Credit: Wikipedia.org

Kinnaur is one of the 12 administrative districts in Himachal Pradesh and is on the north east corner of the state, located at a distance of 235 km from Shimla on NH 22. The old Hindustan-Tibetan road (NH-22) passes through the Kinnaur Valley along the bank of the River Sutlej. Kinnaur lies in the Indo-Tibetan border with Tibet on the east, Garwal Himalayas in the south, Spiti Valley in the north and Kullu on the west.

The River Sutlej rises on the slopes of Kailash Mansarovar in Tibet and flows through the Kinnaur Valley. **As the region was inaccessible in earlier times, there was very little interaction with people from the plains, and, therefore, the ancient Hindu texts considered mystical Kinners as half way between humans and gods. The district was opened for outsiders only in 1989.**



Figure 23. Kinner Kailash at sunrise

*I like this place and could willingly waste
my time in it
William Shakespeare*



Credit: Wikipedia.org

Kinnaur holds three of the world's grand mountain ranges—the Zouskar, Greater Himalayas and the Dauladhar that enclose valleys of Sutlej, Spiti, Baspa and their tributaries. The slopes are covered with woods, orchards, fields and picturesque hamlets. Mount Kinnar Kailash at 18,168 ft (6050 m) dominates the region. It has religious significance because of a huge Shiv ling, the representation of Lord Shiva. It is a 79' vertical rock formation and resembles a Shivling which changes colours as the day progresses. This is one of the mythical abodes of Lord Shiva where he is believed to reside with his family for six months from the beginning of spring to the end of Monsoon.



Figure 24. Sun on Kinner Kailash

Credit: Wikipedia.org

The district headquarters of Kinnaur is at Reckong Peo. As per the 2011 census, it is the second least populated district in the state. The people of Kinnaurs peak a dialect of Tibeto-Burman family called Kinnauri. As we entered the gateway to Kinnaur we were welcomed by the local people.

They were wearing locally made green Kinnuri caps with slight difference for men and women. **The Green Cap is the identity of Kinnauris, as almost all men and women wear it.** The dark green colour of the caps contrasts well with their fair complexion.



Figure 25. Morning light on the peaks

Credit: Wikipedia.org



After accepting their hospitality we proceeded for kalpa 13 km from Reckon Poe (110km from Sarahan), the main village of Kinnaur. Across the river, Kalpa faces the majestic mountain ranges of Kinner Kailash. We stayed in the Circuit House Kalpa. From here the view is beautiful. You could directly watch the changing colours of the Kinner Kialash, which lies at an altitude of 6500 m from

*The earth has music for those who listen
— George Santayana*

the sea level. Kalpa is a mountainous region with sparse vegetation in the high altitudes. At the lower elevation trees like Oak, Chestnut, Maple, Apples and Apricots can be seen.



Figure 26. Temple at Kothi

Credit: Wikipedia.org

About 3km from Reckong Peo (a thirty minute drive) is kothi where a temple dedicated to Goddess Chanadika Devi is located. Set against the backdrop of mountains and groves of Devdar the temple has an unusual architectural style. An exquisite gold image of the devi is enshrined in the sanctum.





Figure 27. River Sutlej

Credit: Wikipedia.org

Next day we visited the majestic Sangla Valley which is located on the right bank of Baspa river. It is 57 km away from Kalpa and situated 8900 ft above sea level. "If a landscape had the powers of casting spells, then, Sangla Valley would be a magician extra-ordinary". In Tibetan language Sang means light and La means Pass. From above the Valley, one could see snow-capped mountains, meandering streams and verdant landscapes and true to its name, the valley was bathed in golden hue. The Baspa river which runs along the valley is 95 kms in length.

Two km from Sangla is the Fort of Kamru built by Bushehr, the original rulers of the region. One could get a glimpse of Chitkul, the last village of the valley, and, beyond lies Tibet.



Figure 28. Trees Credit: Wikipedia.org

From Sangla Valley we started our return journey. Most of the time we travelled parallel to the river Sutlej. You could see construction works all along. It is reported that over 20 Hydro-electric projects are under anvil, since the Sutlej basin is considered to have high potential.



Between Kalpa and Narkanda, on the riverside, you could see the project taken up by the JP Group of companies, in which tunnels are being dug into the mountains. The Karcham project is taken up close to Sangla valley.

Efforts to tame the river were noticeable all along the way. We happened to meet the young woman Collector of the district. When asked about the destruction of the river and its valley, her clear reply was "Development is inevitable".

But what kind of development? Ten years from now we may live to see only the ravaged mountains, dying rivers and river valleys with the foot prints of men obliterating the last trace of the celestial Kinners from this divine land.

The Earth laughs in flowers

Ralph Waldo Emerson

UNIVERSE: CASSINI- PROBING THE MYSTERIES OF SATURN

Anup Sinha

In Hindu mythology Saturn or Shani (means one who moves slowly, as it takes 30 years for it to revolve around the Sun) is one of the most malefic planets, but which also is capable of bestowing spiritual and material benevolence on those born on it. In ancient Roman religion and mythology, Saturn (Saturnus) was the god of agriculture, liberation and time. His reign was depicted as the Golden Age of abundance and peace.

Saturn is the most distant of planets visible to the naked eye. Today science had made such great advances that Cassini- the spacecraft sent by us to Saturn has been able to orbit the planet, conduct investigations and take photographs of unbelievable clarity. Here we explain what is NASA's Cassini Solstice Mission to those of our readers who wish to update themselves on what they know the planet.



SATURN

Adorned with thousands of beautiful ringlets, Saturn is unique among the planets--thus goes its description by NASA. Saturn is the second largest planet in the Solar System after Jupiter. It is called a gas giant as it is mostly a ball of hydrogen and helium with a solid core and gaseous exterior lacking a definite surface. It is flattened at the poles and bulges at the equator. Its mass is 95 times greater than that of the Earth; its radius is nine times that of the Earth. It has only 1/8th of the average density of the earth. The interior of Saturn is probably composed of a core of iron, Nickel, and rock, surrounded by a deep layer of metallic hydrogen and an immediate layer of liquid helium and an outer gaseous layer.

RINGS The rings around Saturn are spectacular. Saturn has a ring system that consists of nine continuous main rings and three discontinuous arcs composed of mostly ice particles with a smaller amount of debris and dust. Of the 62 known moons orbit the planet, 53 are officially named. This does not include hundreds of moonlets within the rings.

TITAN is the largest of moons of Saturn and the second largest moon in the Solar System. It is the only moon to retain a substantial atmosphere.

CASSINI SOLSTICE MISSION

is on an extended mission to explore Saturn, its rings, its magnetosphere and its moons. Cassini-Huygens is one of the most ambitious missions ever launched into space. It is named after the Italian-French astronomer Giovanni Domenico Cassini and the Dutch astronomer and mathematician Christiaan Huygens. Headed with a powerful array of cameras and instruments, the spacecraft is capable of taking accurate measurements and detailed images. It is to carry out 27 investigations.

NASA's Cassini orbiter, was launched in October, 1997 with European Space Agency's Huygens Probe (equipped with six instruments to study Titan). Cassini delivered Europe's Huygens Probe into its historic landing on Titan's surface on 14th January, 2005 which returned spectacular results. The space craft started orbiting Saturn in July, 2004. Cassini completed its initial 4-year mission to explore the Saturn System in June, 2008 and the first extended Mission called Cassini Equinox

I don't think I am alone when I say I'd like to see more and more planets fall under the ruthless domination of the Solar System

Jack Handv

Mission in September, 2010. Now it is on a second extended mission called the Cassini Solstice Mission to explore Saturn and its rings, its magnetosphere and its moons. It is named after the Saturnian Summer Solstice in May, 2017.

INVESTIGATIONS

Cassini's 12 instruments have returned very rich data on the planet and its moons. The photographs sent by Cassini reveal that **the rings of Saturn are not uniform and regular as seen from a distance, but are complex with small moons and particles 'jostling and colliding and where waves and jets constantly form and dissipate'.**

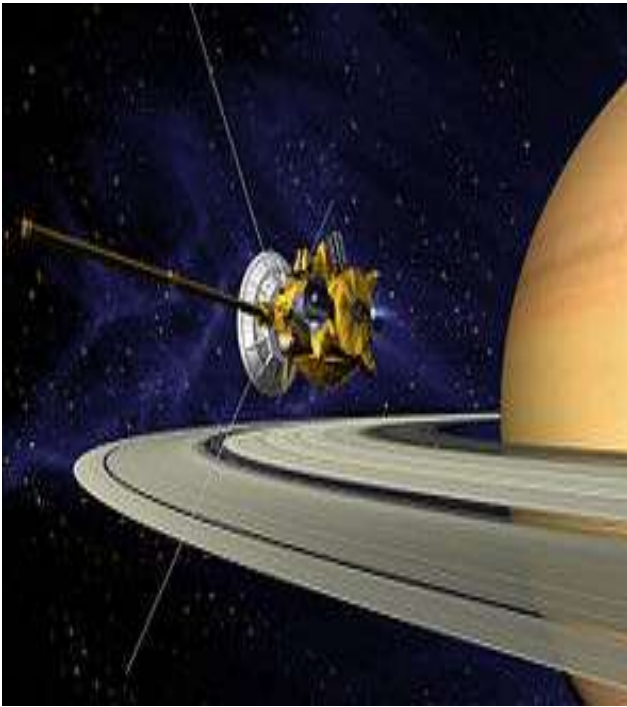


Figure 29. Rings of Saturn

Credit: NASA/Wikipedia.org

Cassini discovered icy plumes shooting from Enceladus. This moon of Saturn is considered very active, and, is therefore, of interest to scientists. According to scientists, the spray contains organic chemicals. With heat, organic chemicals and potentially liquid water found in it,

NASA's assessment is that the moon has Astrobiological potential.

Cassini's investigation of the structure and chemistry of Titan's smog-filled atmosphere and climate changes revealed vast methane lakes. Cassini investigated Saturn's internal structure, magnetic fluctuations and mass of its rings. Cassini also investigated magnetic activity that surrounds Saturn and found that water ice jets from Enceladus play a major role in Saturn's magnetosphere.

TARGETS

Among the most important targets of study are the moons Titan and Enceladus as well as some of Saturn's other icy moons. Towards the end of the Mission Cassini will take close studies of the planet and its rings. Cassini is revisiting many of Saturn's icy moons in the solstice Mission. Cassini will also study the bright and dark surfaces of Dione and Rhea to compare their geological and cratering histories with those of the icy moons.

From the above glimpses of Saturn you saw, you will agree that it is a fascinating heavenly body from any point of view-- be it astronomy, astrology, mythology or religion. The Cassini-Solstice Mission is exiting, because it has been able to probe and bring to light hitherto unknown facets of the planet. Whether we ultimately succeed at the end of summer solstice 2017 or not, this Mission will continue to remain a milestone in the human endeavour to unravel the mysteries of the universe.

SPACE EXPLORATION TOMORROW

Despite the efforts made so far, we need to find answers to the fundamental questions-

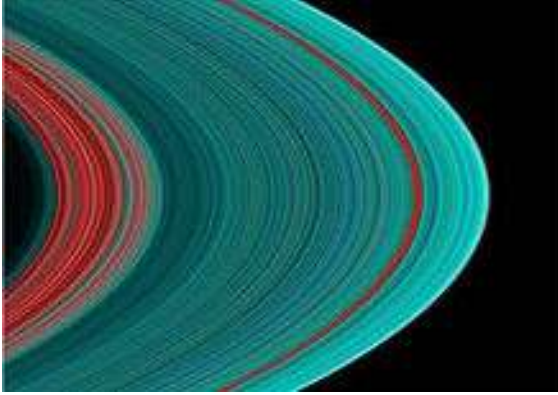
1. How did life begin and evolve on earth and whether it has evolved anywhere else?
2. How did the solar system evolve to its current diverse state?
3. How did the sun's family of planets and minor bodies originate?.

Perhaps when distant people on other planets pick up some wavelength of ours all they will here is a continuous scream

Iris Murdoch

-only time can tell.

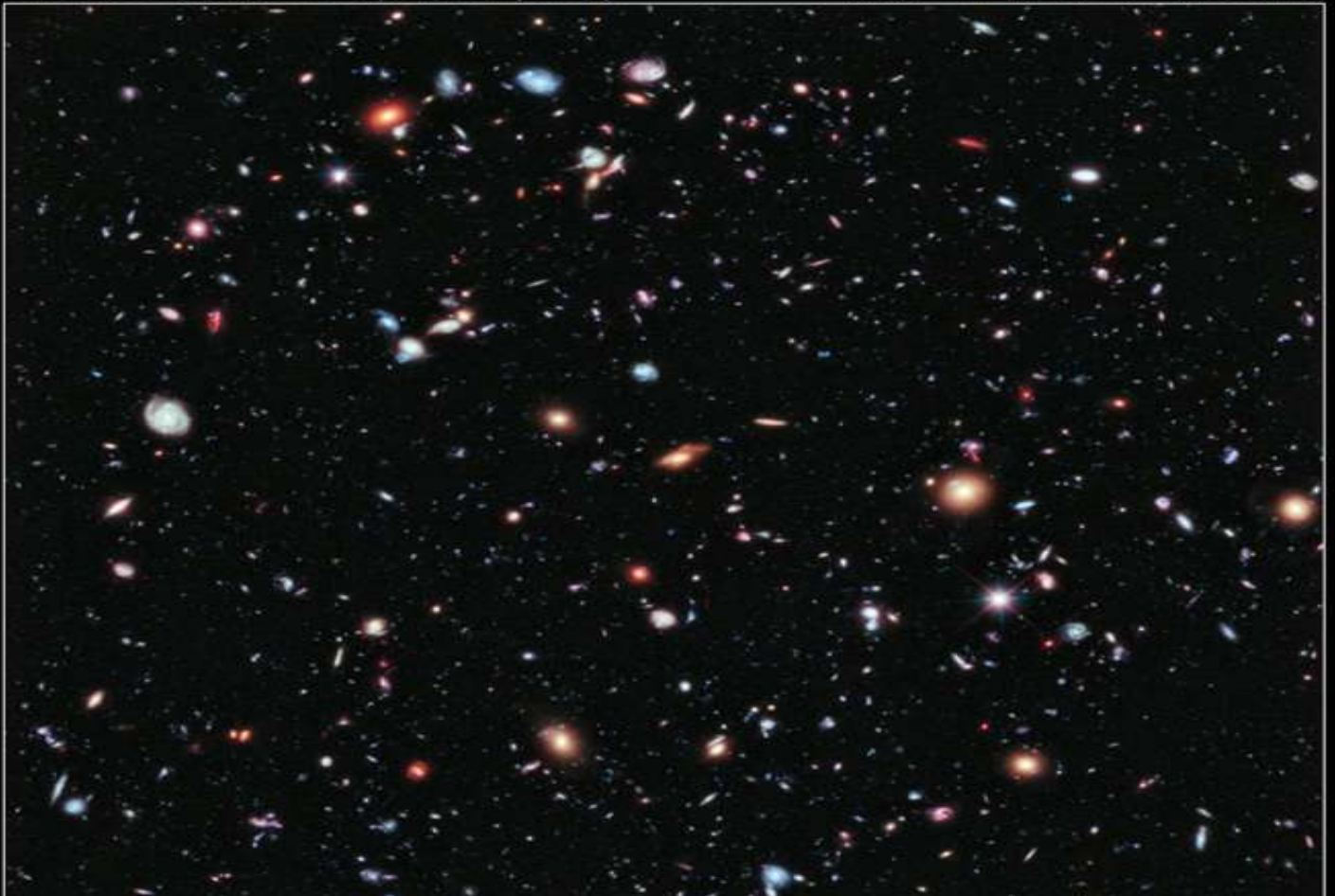
The only thing we know is that science should be able take us as far as we can go.



Credit: NASA

Hubble eXtreme Deep Field (XDF)

HST • ACS/WFC • WFC3/IR



LIFE STREAM is a quarterly magazine on holistic life published by a group of people who are committed to spreading the message of living in harmony with nature.

EXECUTIVE EDITOR S.JALAJA

CONSULTING EDITORS UNNI WARIYAR/ANP SINHA

ASSOCIATE EDITOR SUDHA SHROTRIA

EDITORIAL COMMITTEE S.JALAJA, UNNI WARIYAR, ANP SINHA, SUDHA SHROTRIA

COVER DESIGN UNNI WARIYAR

PAGE DESIGN UNNI WARIYAR

PHOTOS/PICTURES INTERNET

WORD PROCESSING SHAMBHU SHARMA

SUBSCRIPTION SURESH KUMAR

CONTACT sjalaja@hotmail.com

WEB SITE <http://www.lifesciencefoundation.in/>



LIFE SCIENCE FOUNDATION

SERVICE IN TRUSTEESHIP

ABOUT US

The Life Science Foundation is a Not- for- Profit Public Charitable Trust registered on 30th December, 2009. It is a unique initiative by two officers belonging to the Indian Administrative Service (Bihar cadre) namely S. Jalaja and A.N.P. Sinha (IAS-1974) who have retired as Secretaries to Government of India. Their long experience with Governments at the National and State levels have instilled in them the will to continue to serve people, although from a different platform. Service through the medium of a public charitable Trust is in keeping with the Gandhi's ideal of Trusteeship.

OUR VISION

The term Life science encompasses all aspects of life from Right to life- an inalienable right of every human being- to the interconnectedness of the entire web of life. Our vision, therefore, is to promote holistic understanding of life and its purpose, and improvement of quality of life of all.

OUR MISSION

Our mission is to improve quality of life through policy formulation, applied research and real life action. The Gandhian ideals of Sarvodaya and Trusteeship will be the guiding spirit.

OUR AIMS AND OBJECTIVES

To accomplish the above vision and mission, the Foundation will initially have the following aims and objectives. In course of time, more could be included:

1. To promote strategic thinking and suggest policy interventions on holistic and sustainable development.
2. To promote holistic health care system based on simple living, preventive healthcare, and both modern and traditional health systems.
3. To undertake studies, research and action-oriented projects pertaining to holistic life.
4. To undertake pilot projects of good governance including e-governance and eventually support the governments in adopting and up scaling successful pilots.
5. To work towards promoting quality of life of vulnerable sections of population, including women and children.
6. To promote all- round human resource development.
7. To design self- sustaining livelihood projects which minimise subsidies and donor-dependency.
8. To undertake other activities which are conducive to pursuit and fulfilment of the vision, Mission and Objectives of the Foundation.
9. Network with institutions and agencies to achieve the above objectives.

