


# ***LIFE STREAM***

***ANNUAL ISSUE 2011- REFLECTIONS ON NATURE***



***Between every two pines there is a doorway to  
a new world--- John Muir***

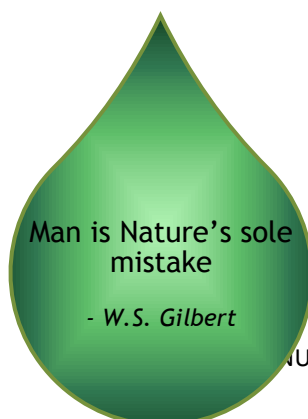
**THEME: REFLECTIONS ON NATURE**

**CONTENTS**

<p><b>A 1. Nature-</b>  <b>'I Spake as a Child'</b>  <b>Opal Whiteley</b>  <b>Page 3</b></p>	<p><b>E 1. Art and Culture</b>  <b>Poor Richard's Almanack</b>  <b>Life Stream Team</b>  <b>Page 34</b></p>
<p><b>A 2. Mother Earth</b>  <b>Does the Earth have rights?</b>  <b>Lifestream Team</b>  <b>Page 6</b></p>	<p><b>F 2. Poems</b>  <b>Hope /Death's Many Lives'</b>  <b>Mohandas Warriier</b>  <b>Page 27</b></p>
<p><b>A 3. Farming</b>  <b>Let leaves feed your soil</b>  <b>Jean English</b>  <b>Page 10</b></p>	<p><b>F 3. Art</b>  <b>Auvers-sur-Oise: Tracing the Footsteps of van Gogh</b>  <b>Sudha Shrotria</b>  <b>Page 28</b></p>
<p><b>B. Science</b>  <b>Ayurveda and Modern Medicine</b>  <b>Darshan Shankar et al</b>  <b>Page 11</b></p>	<p><b>G. Food and Diet</b>  <b>Fragrant Gold</b>  <b>Dr V Namboodri</b>  <b>Page 37</b></p>
<p><b>C. Personalities</b>  <b>Remembering Dr Antia</b>  <b>S. Jalaja</b>  <b>Page 19</b></p>	<p><b>H. Travel</b>  <b>Bengaram</b>  <b>Vishakh</b>  <b>Page 41</b></p>
<p><b>D. Economics</b>  <b>Gandhi and Globalisation-part-1</b>  <b>M.K. Gandhi</b>  <b>Page 23</b></p>	<p><b>I. Universe</b>  <b>Black Holes and White dwarfs</b>  <b>Anup Sinha</b>  <b>Page 46</b></p>

**COVER: PATH IN THE WOODS – JIRI HODAN, PUBLICDOMAINPICTURES.NET**

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## WE PRESENT

*We are happy to present here the second issue of Life Stream. In this issue are included contributions from people who reflect deeply about the uncommon aspects of life and nature. How sacred and profound is Mother Nature!! The legend of Opal Whiteley is about nature- writing at its best, nature through the eyes of a child.*

*At last mankind has started recognising the rights of nature, thereby the rights of all fellow beings. We continue our endeavour to unravel the nature of reality through the eyes of our own traditions .*

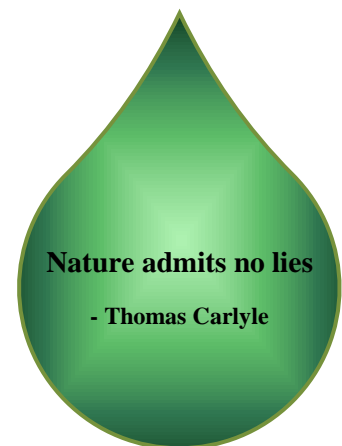


*The poems on Death and Hope tell us what leads us on in the face of despair. Sudha's memorable visit to Auvers-sur-Oise is a tribute to Van Gogh, the renowned impressionist painter who still lives in our memory through his immortal paintings. The life of Dr. Antia who made health care simple is inspiring.*

*This time we tell you about another unique rice variety from Kerala. The travel to the uninhabited Bengaram island is a rare experience.*

*When we think about the universe as a whole, what are we?----`Plaything of nature's forces less than a speck of dust in the universe'----as written by Nehru, India's first prime Minister. As Life Stream continues its journey, you may discover the much needed respite and quietitude in its gentle flow.*

*We have compiled information on the theme 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 the Annual issue of Life stream, 2011 titled "**Reflections on Nature**".*



**LIFE STREAM TEAM**

## NATURE: 'I SPAKE AS A CHILD'

-Nature through the eyes of a child



Figure 1. Opal Whiteley

Credit: Wikipedia

*In this article, we introduce you to the legend of Opal Whiteley (December 11, 1897—February 16, 1992) an uncommon American nature writer. Her diary, said to have been written by her when she was just six or seven, was called "The Last Literary Mystery of the Twentieth Century". The diary was first published in 1920 as The Story of Opal in serialized form in the Atlantic Monthly, then, later that same year, as a book with the title The Story of Opal: The Journal of an Understanding Heart. It was an instant bestseller. Her story fascinated her readers and caught the imagination of the people.*

*Was she a literary hoax or pure genius? Many doubted whether the diary was indeed written by a child. Besides, even now her origin continues to remain shrouded in mystery. However, it does not truly matter what her origins were or whether her diary was a childhood chronicle; her nature writings reflect 'the joys of seeing, knowing and doing' as the real joys of life. It" is a touching and piercingly honest revelation of an imaginative child's spirit." The mystery and magic of her writing continue to fascinate us. We present here a bio-graphic sketch of hers and reproduce two samples of her writings from her book *The Fairy Land Around Us*.*

### WHITELEY - A BIOGRAPHIC SKETCH

Opal Irene Whiteley was born in Washington, on 11 December 1897, the first of five children. Opal grew up in small towns near various lumber camps, usually in poverty. Opal claimed she had been adopted by the lumberjack family, the Whiteleys, after her mother had drowned, that her real name was Françoise D'Orleans, and that her real father was Duc Henri, Prince d'Orleans who died unmarried in 1901. The Orleans family always denied her claim, while the Whiteleys could not accept the fact that she rejected them.

While Opal Whiteley used several names during her lifetime, the one she preferred and was later buried under was 'Françoise Marie de Bourbon-Orléans'. Biographers have confirmed that at an early age, Whiteley was a noted amateur naturalist and a child prodigy who was able to memorize and categorize vast amounts of information on plants and animals. According to Whiteley and her grandmother, as a child

Whiteley was usually punished for daydreaming and "meditations," for running away to go on "explores" instead of working, for misguided attempts to help around the house which ended in disaster, and especially the time and effort she spent on caring for the animals around the lumber camp. She had a great many animal friends, both wild and domestic, to whom she gave fanciful names derived from her readings in classical literature. As a teenager she began tutoring local children and young adults in natural history'.

The volume of Nature is  
the book of knowledge

- Oliver Goldsmith

She became famous throughout the region as the "Sunshine Fairy" and gave numerous lectures on geology and natural history. When she attended university in 1916, Whiteley was still living at home. When her mother and grandfather died, she moved out and began supporting herself solely through her lectures. Attending the University of Oregon in fall 1916, she was reportedly regarded in awe by professors and students alike. Opal Whiteley left USA in the early 1920s, never to return'— She traveled to India in the 1920s and was the guest of the Maharaja of Udaipur, and wrote several articles about India for British magazines.



**Figure 2. Toadstools**

*Credit: Vera Kratochvil, publicdomainpictures.net*

She eventually settled in London. During Second World War, she lived in London in a flat in the company of thousands of books. She spent 44 years in the Napsbury psychiatric hospital, after suffering a head injury during the bombing of London. Whiteley remained at Napsbury until her death on 18<sup>th</sup> February, 1992, at the age of 94. **She was buried at High gate Cemetery, where her gravestone bears both her names with the inscription "I spake as a child".**

### PUBLICATION OF HER DIARY

Whiteley attempted to self-publish a textbook, *The Fairyland Around Us*, which was developed from her popular talks on the natural world. Unfortunately, she ran out of money for *Fairyland* and was only able to send a

limited number of copies to subscribers. She then went in search of a commercial publisher, without success. However, in a meeting with Ellery Sedgwick, publisher of the *Atlantic Monthly*, she arranged to publish her childhood diary. When Opal visited the offices of the periodical *Atlantic Monthly*, Sedgwick was said to have asked her if she had ever kept a diary. Opal said an early diary existed, but it had been ripped to pieces by a jealous sister. She had, however, kept the pieces in a hat box. Sedgwick sent for the boxful of fragments and set Opal to work, piecing them together. The task took her nine months. Photographs of the mended manuscript, 150,000 words long, reveal that it was written in crayon, in capital letters, on any paper she could get'.



**Figure 3. Wonderland**

*Credit: Unknown*

"Soon people started doubting the veracity of the diary as it was considered too complex to be the work of a young child. Some people believed that she fabricated the diary to gain publicity and that she suffered from some psychological ailments". Benjamin Hoff (an author based in the US) based much of his argument for authenticity on the premise that it would have been an extraordinarily elaborate deception for the adult Whiteley to first create a diary as a child might have printed it, then tear it up, store it and re-assemble it for Sedgwick and the *Atlantic Monthly*. Further, he indicated that he personally examined some of the few

I often think that the  
night is more alive and  
more richly coloured than  
the day

- Vincent Van Gogh

remaining diary pages and those chemical tests of crayon markings showed that the crayons were manufactured prior to World War I. This claim was initially made by Lawrence in *Opal Whiteley, The Unsolved Mystery*, who said she had had the diary pages submitted for scientific scrutiny.

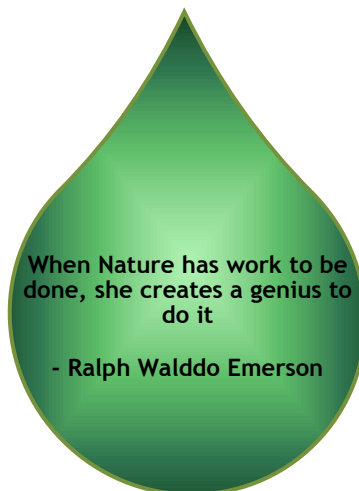


Figure 4. Pixies at Dusk Credit: Unknown

## TWILIGHT, AND THEN – NIGHT

*To the Birds belongs the morning hour; but to us, to you and me, and some of our little brothers of the field and forest, this hour belongs. It is the hour when we think about the things that are yet to be. We dream and we listen -- listen to the lullaby songs of the Trees, to the twilight chorus of the Frogs, to the Vesper Sparrow, to all Mother Nature's evening music we listen and dream -- and in the midst of our dreaming stop to ask Mother or Father about things, where things come from and what they are here for. And some things seem so far away, some things seem so near in this the twilight hour-our own hour.*

*Last night I went into the Forest. Moonbeam fairies brightened the path that leads towards the cathedral and into the woods beyond. I went softly-and listened-and I heard the patter, patter of hurrying little feet scurrying over the woodland floor. Now and*



*then I stopped very still and kept so far for a few minutes-and saw these little folks who made those faint pattering and rustling as they went this way and that. A Wood-rat scampered across my path. Farther along a skunk moved from one log to another -- 'twas no other than my chum o' two years, Julius Caesar Napoleon. It happened that I had some beetle grubs with me. A little ways I went and saw -- a great Owl circling about. Seven trees and two logs distant*

*I came upon the Flying Squirrel fairies. Down the path fifty paces and two stumps to the right were four dear Wood Mice. The night was wonderful. Over my head the tall Fir trees reached upward to the sky. Through their branches Moonbeam fairies came and glorified the tiny mosses and vines. Upon the harp-strings of these forest trees the wind musicians played Sweet lullabies. A forest Moth and yet another I saw within the Cathedral. A Deer passed near me, and a little farther on I saw a Fawn. The brook was singing a night song -- and the song which it sang in the night was as sweet as the song it sang through the day. Peace was in the forest -- Peace was in my heart. Why should I fear the night or the darkness? God keeps His little folk of the forest -- God keeps me. I love the night, its voices and its music, and the wee little folk about -- and I trust in Him, and am happy.*

Twilight -- and then night.  
But child hearts need not fear,  
For wee little folk are about --  
After the lights at home are out,  
And shy little feet scamper over  
the forest floor;  
Sweet is the night, and rich its  
childhood lore,  
For the shy little folk of the forest  
dim,  
And the shy little people of the field  
Are all under the care of Him  
Who teaches mankind little children  
to shield.

## SOURCES

1. Wikipedia
2. Who was Opal?-a BBC Radio4 Program
3. Project INTERSECT, University of Oregon
4. The Fairy Land Around Us-a web based reproduction by David A Caruso

## DOES THE EARTH HAVE RIGHTS?

### -LIFE STREAM TEAM

*The Universal Declaration of the Rights of the Mother Earth was adopted by the World People's Conference on Climate Change and the Rights of the Mother Earth held in Bolivia in April, 2010.*



Figure 5. Green Earth

*Credit: Neijma, Deviant Art*

*Before this, in the year 2008, Ecuador, a small South American country home to Galapagos Islands, Andean mountains, and Amazon rain forests became the first country in the world to have formally recognised the rights of the Mother Earth.*

*Its new constitution includes a chapter addressing rights of nature. 'Rather than treating nature as a property under the law, these laws acknowledge that nature in all its life-forms has the right to exist, persist, maintain and regenerate its vital cycles. The people have the legal authority to enforce these Rights on behalf of the ecosystems. The ecosystem can be defined as the defendant'.*

*Following the footsteps of Ecuador, Bolivia is about to declare the Law of*

*Mother Earth investing Nature with rights. A global campaign for the Universal Acceptance of the Rights of Nature is on. According to the campaigners, 'A crisis of Conscience' is spreading across Latin America. The Earth summit 2012/ Rio+20 Assembly are taking place in Rio de Janeiro, Brazil in June, 2012. In this article you will find answer to these questions: What are the rights of the Mother Nature? Can they be enforced? What will be their impact on protecting the world's natural resources?*

### ECUADOR: CHAPTER: RIGHTS FOR NATURE



Figure 6. Shepherd's Hut, Ecuador

*Credit: Stock Photos*

Art. 1. Nature or Pachamama, where life is reproduced and exists, has the right to exist, persist, maintain and regenerate its vital cycles, structure, functions and its processes in evolution.

Every person, people, community or nationality, will be able to demand the recognitions of rights for nature before the public organisms. The application and interpretation of these rights will follow the related principles established in the Constitution.

The State will motivate natural and juridical persons as well as collectives to protect nature; it will

The earth is a mother that never dies

- Maori Saying

promote respect towards all the elements that form an ecosystem.

Art. 2. Nature has the right to an integral restoration. This integral restoration is independent of the obligation on natural and juridical persons or the State to indemnify the people and the collectives that depend on the natural systems.

In the cases of severe or permanent environmental impact, including the ones caused by the exploitation on non-renewable natural resources, the State will establish the most efficient mechanisms for the restoration, and will adopt the adequate measures to eliminate or mitigate the harmful environmental consequences.

Art. 3. The State will apply precaution and restriction measures in all the activities that can lead to the extinction of species, the destruction of the ecosystems or the permanent alteration of the natural cycles.

The introduction of organisms and organic and inorganic material that can alter in a definitive way the national genetic patrimony is prohibited.

Art. 4. The persons, people, communities and nationalities will have the right to benefit from the environment and form natural wealth that will allow well-being. The environmental services are cannot be appropriated; its production, provision, use and exploitation, will be regulated by the State.

(curtesy:www.rightsofmotherearth.com/ecuador-rights-nature/)

## LAW OF RIGHTS OF MOTHER EARTH, BOLIVIA

Bolivia too has incorporated the Rights of the Mother Earth in the Law of Rights of Mother Earth (Law 071 of the Plurinational State) that was passed by the Bolivian Plurinational Legislative Assembly in December, 2010. A ten-article short version of the Law passed by the Assembly defines Mother Earth as 'a collective subject of public interest: "The dynamic living system formed by the indivisible community of all living system

and living beings that is inter-related, inter-dependent, and complementary, which share a common destiny'. She (Mother Earth) is sacred, fertile and the source of life that feeds and cares for all living beings in her womb. She is in permanent balance, harmony communication with the cosmos. She is comprised of all ecosystems and living beings and through self-organisation".



Figure 7. Girl from Potosi, Bolivia

*Credit: Stock Photos*

The short version of the law is derived from the first part of a longer Bill and includes the right to life, right to diversity, right to clean water and air, right to maintain equilibrium, right to restoration and right to live free of contamination. The Vice-President of Bolivia Alvaro Garcia Linera was quoted in the Guardian "the law establishes a new relationship between man and nature, the harmony of which must be preserved as guarantee of its regeneration" It redefines the country's mineral deposits as "Blessings".

The law, which is a part of complete restructuring of Bolivian legal system following a change of constitution in 2009, has been

The lush carpet of pine needles on spongy grass is more welcome than the most luxurious Persian rug

- Helen Keller



heavily influenced by a surgent indigenous Andean spiritual world view which places environment and the earth deity known as Panchamama at the centre of all life .Humans are considered as equal to all other entities.” In the indigenous philosophy the Panchamama is a living being. President Evo Morales, the first indigenous leader of Bolivia is the architect of the Law of Mother earth. He stated. **“The Planet can live without the human beings, but humans cannot live without the planet”**.

#### PASSAGE OF THE PROPOSED FULL BILL

Party of Bolivia, the Movement towards Socialism, enjoys a comfortable majority in Parliament. The Bolivian government plans to establish a Ministry of Mother Earth to implement the Law which will establish new rights of nature and also plans to appoint an Ombudsman and to give communities new legal powers to monitor and control polluting industries. Stated the Environmental News Service ...”the law is considered to be the first instance of environmental l



**Figure 8. Lake Laguna Verde, Bolivia Credit: Photos**

law that gives legal personhood to the nat which may also allow for citizens to sue indi

groups as a part of Mother Earth in response to real and alleged infringement of its integrity.

The full Bill was to be considered by the Assembly in 2011. However it was not taken up. Now it is kept for early passage in 2012. It is expected to be passed by the Assembly as the ruling Lake Laguna Verde, Bolivia.

**We do not inherit the earth from our ancestors, we borrow it from our children**

**- American Indian Proverb**

#### THE NEW RIGHTS OF MOTHER EARTH TO INCLUDE

1. The right to maintain integrity of life and natural processes
2. The right not to have cellular structure modified or genetically altered.
3. The right to continue vital cycles and processes free from human alterations.
4. The right to pure water
5. The right to clean air.
6. The right to balance, to be at equilibrium.
7. The right to be free of toxic and radio-active pollution
8. The right not to be affected by mega infrastructure and development projects that affect the balance of ecosystems and the local inhabitant communities.

#### GLOBAL ACTION

Following the adoption of the Declaration of the Rights of the Mother Earth by the World People’s Conference on Climate Change and the Rights of the Mother earth, the Bolivian government submitted a proposal to the United Nations the creation of a UN Treaty on the Rights of the Mother Earth. No doubt a beginning has been made, despite the fact that the rights conferred on nature by the two South American countries could be perhaps interpreted as abstract.

#### WHAT ARE THE CONCERNS?

A concern has been expressed by some people that that while the US and the Western governments may be supportive of sustainable development, they may not accept that capitalism is to be blamed for environmental degradation . Further, it is feared that socialist governments may exploit the law for political propaganda against the West. They feel that, instead, the focus should be

on tackling important issues relating to sustainable development through existing channels and processes. Some of the new rights included in the proposed Bill are viewed with concern by others like the one relating to infrastructure and development projects.



Figure 9. Bolivian Countryside Credit: Stock Photos

In an article in the Guardian newspaper, it has been pointed out that Government must regard a fine line between increased regulation of companies and giving away to powerful social movements that have pressed for the law. Bolivia earns 500 million per year from mining companies which provide nearly 1/3 of the country's foreign currency. "Foreign investment in these countries is likely to be substantially reduced, on account of more regulation, stricter monitoring and increasing number of court cases that may arise on account of violation of the laws. On the other hand, long term benefits, including better and healthier life for millions, could be brought about, provided the implementation of the laws holds true both in letter and spirit and that they are not exploited for political purposes.

Take care of the earth, she  
will take care of you

- Unknown

## THE GAINS

The momentum gained by the movement for protecting nature from mindless exploitation by us needs to be kept alive; otherwise the system will slip back to its former position. For the first time human beings have come to realise the enormous destruction unleashed by them on nature leading to catastrophic impact on all beings. The path breaking initiative could be considered as a paradigm shift from an anthropomorphic system to one which is more harmonious, with equal rights being given to all living things.

## WHAT NEEDS TO BE DONE?

All of us will agree that laws conferring legal rights to nature alone however, are not sufficient. Human beings have to develop a life-style in complete harmony with nature. Economy, society, culture- whatever that matters to us need to be readjusted to be in tune with it. Appropriate policy interventions in all segments relating to good governance need to be taken up. Decentralisation, delegation and deregulation should complement the Law. Otherwise it is likely to remain locked up at the central government level. Elected local bodies should play a major role in its implementation, otherwise ordinary people will be disconnected from it. The penalising provisions need to be effective and transparent. Fast-track courts should quickly dispose of the cases against alleged violations. At a time when issues like climate change and environmental degradation are affecting the life and livelihoods of millions of people all over the world, we have to find innovative solutions to these problems.

'Conferring rights on the Mother Earth is the modern way of expressing the profound regard and reverence men always had (but forgotten) for her. It reflects the changing mood of the times, aspiring to find holistic solutions to the crisis created by us in recent times. As the great scientist and world citizen Albert Einstein observed **'The significant problems we face cannot be solved at the same level of thinking we were at, when we created them'**.



Bolivia Lagoons pixabay.com

## LET LEAVES FEED YOUR SOIL

-Jean English

*As the readers are aware, Life Stream is committed to the idea of living in harmony with nature. One way to achieve it is through promoting organic farming in the place of high-tech farming. We are aware that just creating awareness amongst the readers is not enough; we need to provide information to you on how to go about it. We learned that the Maine Organic Farmers and Gardener's Association (MOFGA), USA, is committed to propagating organic farming and are providing useful information through short articles and Bulletins about the techniques involved. We are happy to state that by arrangement with the Association we will bring to you the reprints of the articles published in their website to encourage and support you in your endeavour.*

Looking for free “fertilizer” for your lawn or garden? Look to leaves! Leaves that drop in the fall can supply all the nutrients needed in a vegetable garden. They'll even supply a wider range of essential nutrients than a bag of 10-10-10 synthetic fertilizer, because tree roots draw. So, instead of thinking of leaves as waste that needs to go “away,” think of your yard as a source of nutrients, a green manure crop, for your garden.

The University of Florida (<http://edis.ifas.ufl.edu/MG323>) found that “good yields of such crops as cucumbers, tomato and greens can be expected after 2 to 3 years of applications of at least 20 tons [of oak leaves] per acre annually.” That's a little under 1 pound per square foot per year.

Some people worry that adding leaves to the garden will tie up nitrogen that crop plants need. This won't be a problem if you add leaves as a mulch in the fall (especially if you've shredded the leaves by running over them with a lawnmower), so that soil organisms and weather move them into the soil slowly. Also, including grass clippings with leaves adds nitrogen to the mix, further reducing the chance of nitrogen deficiency, as does mulching the garden with additional grass clippings throughout the summer

If you don't have a garden to receive leaves, or you don't have a lawn mower that catches clippings and leaves, just leave the leaves on the lawn, mowing them a few times during the fall to shred them. Denise

Ellsworth of Ohio State University Extension writes, “Research has shown that lawns can absorb many pounds of shredded leaves with no detrimental effects.” She says that Purdue researchers mowed 2 tons of leaves per acre into turf grass annually for five years. They saw no increase in disease or weed problems and no pH or nutrient-availability issues. Microbial activity did increase—a sign of improved soil quality. (“Leaves benefit gardens as compost and mulch,” Akron Beacon Journal, Nov. 10, 2007).

Decomposing leaves improve soil structure so that it absorbs more moisture during rains and holds that moisture better during dry spells. Your lawn will stay greener longer in the summer.

If you don't want to mow and shred leaves, you can rake them into compost piles and make leaf mold—a good substitute for peat moss in the garden and in potting mixes over a dozen plant nutrients up from the soil and deposit them in leaves. Bags of synthetic fertilizer, on the other hand, often contain just three essential plant nutrients: nitrogen, phosphorus and potassium.

**THIS ARTICLE IS PROVIDED BY THE MAINE ORGANIC FARMERS AND GARDENERS ASSOCIATION (MOFGA), MOFGA@MOFGA.ORG; JOINING MOFGA HELPS SUPPORT AND PROMOTE ORGANIC FARMING AND GARDENING IN MAINE AND HELPS MAINE CONSUMERS ENJOY MORE HEALTHFUL, MAINE-GROWN FOOD. COPYRIGHT 2008.**

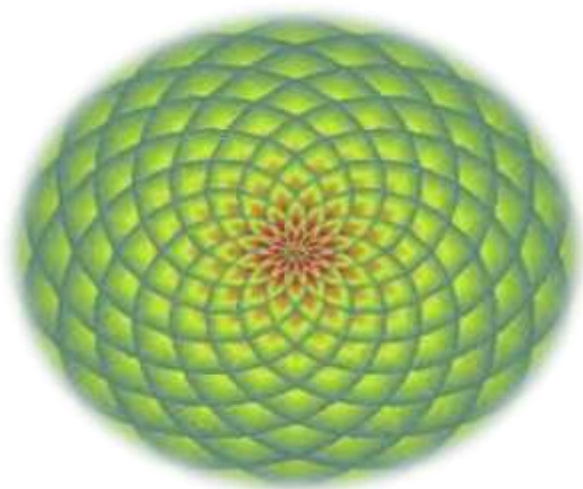


(Credit: betterhousekeeper.com)

## SCIENCE: AYURVEDA AND MODERN MEDICINE

-Darshan Shanker, Ram Manohar and P. Unnikrishnan

*In the last issue we published an article entitled 'The Nature of Reality' (Part-1) by Prof .K.P. Muraleedharan in which a comparison was made between the Eastern and western approaches to the nature of reality. Here in their article on 'Science: Ayurveda and Modern Medicine' Shri Darshan Shanker and others elucidate the nature of reality as perceived in Ayurveda, often referred to as the 'Science of Life'.*



It is unfortunate but true that 'science', defined in its broadest sense, as approaches to a systematic study of

nature, does not exist across different world cultures. Whether Chinese, Indian, African, South American or Western, scientists today are all members of the same scientific club. And while scientific institutions have been established in different geo-cultural regions, their work is completely insulated from their own indigenous sciences, which may be based on very different ways of knowing nature.

**Nature, in its indifference,  
makes no distinction between  
good and evil**

**- Anatoly France**

In his monumental work, "Science in Traditional China," no less an authority than Joseph Needham concludes that while the technological contribution of the Chinese to the world has been diverse and impressive, its 'shortcoming' lies in that it did not culminate in 'science'. **The ethno-centric assumption of Needham is that Western Scientific expression is the preferred and highest mode of flowering of any knowledge system.**



There are similar conclusions by European scholars regarding the nature and status of Indian contributions to mathematics, medicine and astronomy. While the world-views of the Indian folk as well as codified medical traditions overlap, they are both very different from the world- view of Western medicine; this difference is not surprising as the genesis of Indian medicines, both in terms of time, as well as the cultural space in which it evolved, is so different from that of Western medicine.

To understand this fully, we would first need to understand the theoretical basis of the Indian medical heritage and appreciate its cultural underpinning nature. The indian tradition comprises such medical knowledge systems as Ayurveda, Siddha, Swa-Rigpa (Tibetan) and Unani, as well as folk systems. These (except for the folk) are all codified systems with sophisticated theoretical foundations and a special understanding of physiology, pathogenesis, pharmacology and pharmaceuticals.

The contents of Ayurveda, for instance, cover eight broad areas: *Kaya cikitsa* (general medicine), *Bala cikitsa* (paediatrics), *Grhacikitsa* (psychiatry), *Urdhvanga cikitsa* (ear, nose, throat and eye), *Salya cikitsa* (surgery), *Danistra cikitsa* (toxicology), *Jam cikitsa* (rejuvenation) and *Vajikarana cikitsa* (virilification). In indigenous pharmacology, better known as *Dravyaguna Sastra*, then entire plant and/or its parts the leaves, stem, seeds, root, bark, fruit, flowers are studied as a whole in terms of their in vivo

'systemic' effects on such parameters as *rasa* (taste, of which there are six, each suggestive of the composition, properties and biological activity of the substance), *virya* (the potency of a substance immediately after ingestion), *vipaka* (the post-digestion state of a substance) and



**Figure 10. Thulasi or basil used widely as a home remedy**

Source: *natural.com*

*prabhava* (the overriding biological activity of a substance), and used as therapeutic agents. Modern pharmacology, on the other hand, isolates an active chemical entity from the plant or its parts and studies its *in vitro* and *in vivo* effects on micro-organisms or body tissues. Both approaches undoubtedly have their uses.

The difference lies primarily in the fact that, in indigenous knowledge systems the evaluation is 'systemic', whereas, in Western medicine it is 'atomic' or cellular; furthermore, the category of knowledge known as chemistry is absent and is substituted by another category called *Dravya Guna Sastra*. In any comparative study of the two sciences it is imperative to have an appropriate terminology and language for a dialogue. Correlations between the medical

systems are, however, poorly established at present. For instance, *Vata* is often equated with the nervous system or nerve force, and *Pitta* with the digestive system, enzymes, hormones and the heat-regulating mechanism. While such an equation may work at one level, it often breaks down at other levels. The intellect, for example, is a function of *Pitta*, representing a preponderance of *satva guna* (a term that refers to a quality of the mind). In Western physiology, however, the intellect falls in the domain of the nervous system and must therefore be equated with *Vata*. Such equations tend to be untenable because the principles of classification in Western medicine and Ayurveda belong to radically different orders. When Western physiology speaks of nervous tissue, muscular tissue or epithelial tissue, the principles of classification are anatomical, based on the structure of the component parts. In the Ayurvedic triadic classification of *Vata, pitta and Kapha*, the basis is biological and based on systemic functions. To cite another example of incompatibility, the essence of the modern laboratory method is to first isolate an object or aspect from its environment, eliminate temporarily its links with other diverse factors in nature, and then reduce its relationships to engage the minimum possible number of measurable and controllable parameters. These parameters are then varied (usually one at a time) and their effects on the objects studied. Finally there is an attempt made to integrate the findings arising out of the disintegrated studies. In contrast, the traditional approach attempts to solve a problem by considering it in its entirety, including its inter-links and outside connections. This method of solving problems in their natural setting seems to be efficient in providing balanced solutions.

Indian systems seek to study nature by systematising natural phenomenon and making it rigorous rather than destroy its essential unity and multi-faceted character. Thus, according to Caraka, Ayurvedic science is dependent upon *yukti*, which is the method that perceives phenomena brought into existence by the coming together of a multiplicity of causes. Having perceived this

Two things are infinite: the universe and human stupidity. And I am not sure about the universe.

- Albert Einstein

multiplicity of causes, it uses *yukti* to bring about holistic understanding and design appropriate actions and material at the appropriate time and place.



Thus, the traditional system, even in its theoretical formulation, seeks to find a holistic strategy for healthy living, rather than dissecting life, and, then trying to string it together again. It appears, then, that while traditional sciences are built upon a stupendous amount of detailed and minute observations, they do not have a disintegrated scheme for experiment in the modern laboratory sense of the term. To elaborate further on the differences in approach: the Ayurvedic analysis of matter is in terms of *Panchabhutas*, that is, the five sense impression resulting from the contact of matter with the sense organs (sound [ear] attribute of space; touch [skin], attribute of air; form [eye], attributes of fire; taste [tongue], attributes of water; smell [nose], attributes of particulate Matter, i.e., earth). The Western method, on the other hand, analyses matter according to the elements with which it is composed of. Ayurveda is a complete theory valid for all time, because the sense functions do not change.

### THREE DOSHAS AND FIVE SENSES

in Ayurveda (Wikipedia.org)

Although measurement and quantification are an important part of indigenous systems of medicine, they differ in form from their modern counterparts. Most measurements in the traditional sciences are made using units 'normalised' to an individual. In Yoga Cintamani, for instance, a *tanmatra* of time has been defined as the time taken

by a sleeping individual to complete one cycle of breath- one inhalation and one exhalation. Although measurement and quantification have their place in Indian Systems of Medicine (ISM), their role is different from that of modern systems. In India, it is not the geometry of Euclid but the **Astadyayi of Panini** that is considered the supreme example of the construction of theory. Indian sciences are based on the understanding that numbers and symbols are not essential to achieve scientific rigor. Rather, the technical use of natural language. Sanskrit, for instance has sufficed, even in highly abstract and technical topics like logic, mathematics and Vedanta.

### THE WORLD VIEW

The Ayurvedic tradition views the world in terms of varying configurations of the 'five states of matter present in all objects. These five states are viewed in a descending order and are symbolised by the words *akasa* (space), *vayu* (wind), *agni* (fire), *ap* (water) and *prithvi* (earth). All natural objects, living and non-living consist of these five states, albeit in different proportions. And just as the atomic configuration of a material determines its form and properties, it is these proportions that determine the form and qualities of every object. These five states of matter are associated with the five human sense organs. It is the ear that perceives akasa through 'sound' vibrations that are its principal attribute. It is the skin that senses movement, which is the attribute of wind; the eyes that see and sense light the attribute of agni: the tongue that tastes, which is the attribute of liquids (*rasa*); and it is the nose that smells as the *guna*, which is the principal attribute of solids. In both the folk and codified traditions, properties of materials are expressed in terms of the material state dominant in them. Thus, the potato is wind-causing because it is *guru* or heavy to digest and hence vitiates *vata*.

Science does not know its debt to the imagination

- R.W. Emerson

## Ayurvedic Literature on Tools of Knowledge and their Applications

### Tools of Knowledge

### Level of Application

*Aptopadesa* (Knowledge through teachings of seers who are one with nature)

*Tattva* (principle) and *Vyavahara* (practice)

*Anumana* (Knowledge through inference including Yukti-causal relations, and *Upamaan-compara* type reasoning)

*Sastm* (codification of knowledge)

*Prai yaksa* (Knowledge through direct perception including *yogaja pratyaksa* or intuitive cognition)

*Vyavahara* (practice) and *Tativa* (principles)

Chilies, on the other hand, have a higher proportion of agni or fire as the dominant state; the thinner the chilly, the spicier it is likely to be as fire in a fat chilly is balanced by its content of water. Again, the cucumber has relatively more water (or ap) as its dominant state and can thus boast of cooling properties.



Diseases are also seen as an imbalance (*vikrti*) in the normal proportions of the five states in the human body. Parkinson's disease or paralysis, where limbs tremble or become frozen, is due to an imbalance of wind in the body, which affects motion. Hyperacidity is caused by an imbalance of fire (agni) and wind (vayu); obesity represents an imbalance of solid and liquid (prithvi and Ap) states. This indigenous world-view also believes in the existence of a subtle world of spirits (bhuta, preta). The objects in this spirit world are known to be dominant in the space and wind principles). The human mind-- as

opposed to the brain — is itself the manifestation or 'spirit in the human body. The mind is akasa (space) and vayu (wind) dominant (pradhana). Therefore, according to Ayurveda, if the mind is to be influenced, it can be influenced by regulating breathing (vayu) or by using 'sound' the form of music, mantras and thoughts. It can also be influenced by drugs that act on akasa (space) or vayu states.



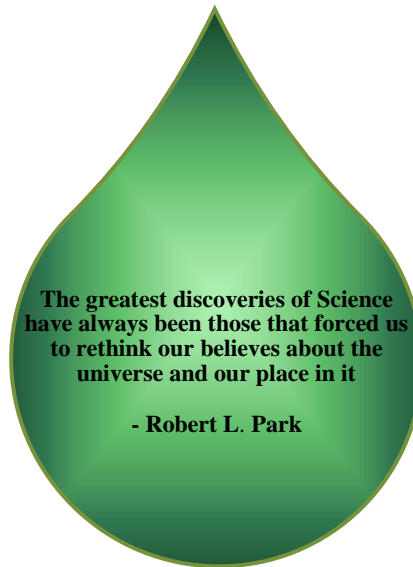
In the specific context of Ayurveda and modern medicine, the difficulty in making comparisons becomes evident when one attempts to compare them due to the lack of conceptual correlation available between the three basic physiological parameters of Ayurveda (kapha, vata and pitta) and the parameters of modern physiology, such as hormones, blood pressure, lipid levels, blood sugar and bilirubin levels. Ayurveda also does not give quantitative parameters the same importance they receive in the Western tradition; although

Technology is a lady without whom  
no biologist can live. Yet he is  
ashamed to show himself with her in  
public

- E.W. von Bruke

measurement and quantification are used, they differ in form from the Western systems of knowledge.

Most measurements in traditional medical science are made using units that are normalised to the individual. That is, while assessing a person's height or length of his or her limbs, the measurement is expressed in units of anguli, the dimension of a finger of the concerned individual. There is thus no arbitrary standard external to the individual, such as the international meter. Such units exist



the evolution of diseases, as well as criteria for admitting a therapeutic substance into the Materia Medica, all of them are based on its own epistemology, which is different from that of the modern sciences.

The worldview of Ayurveda is based on the Sankhya school. Sankhya assumes that the manifest or objective world (*vyakta*) emerges from the unmanifest (*avyakta*) or subjective world, and,

Holistic Scheme for Understanding the Genesis of Diseases		
Five fold scheme for diagnosis	Relation to stages of	Illustration in the ease of amiapitta - hvneracidiv
<b>Nidana (aetiology)</b>	<i>Gaya</i> (accumulative phase) <i>Prakopa</i> (aggravation and activation phase)	<i>Viruddhanna</i> (incompatible food), <i>andaseva</i> (sour food), <i>vidakiwzna.</i> (heat generating food) <i>nitta prak-anakanna</i>
<b>Purvarupci indicators)</b>	<b>(prodromal</b> <i>Prasara</i> (dissemination and repercussion phase) <i>Sthallasamsraya</i> (localization	<i>Trt</i> (thirst), <i>daha</i> (burning sensation), <i>arniodgara</i> (sour reaction), <i>sveara</i> (sweating)
<b>Rupa (full blown symptoms)</b>	<i>Vyakti</i> (manifestation phase) <i>Bheda</i> (disruption and complications phase)	<i>Avt,vaka</i> (indigestion), <i>klama</i> (lethargy), utkiesa (nausea), <i>tiktamlodgara</i> (bitter and sour eructation), <i>gaurcva</i> (heaviness), <i>hrddaha</i> (burning in the heart), <i>kanthadaha</i> (burning in the throat), <i>aruci</i> (loss of appetite), <i>atisara</i> (loose bowels), <i>vanuzna</i> (vomiting), <i>moha</i> (delirium), <i>inurccha</i>

not only for measurement of length but also of volume and time. Again, while Ayurveda, like the Western systems, does have methods of verification, sophisticated schemes for diagnosis, descriptions of

that there is an essential unity and continuum between the two. At a philosophical level, it implies the essential unity of the inner and outer self and of nature. Thus,



Table of Terms	
<i>Bala (strength)</i>	Sahaja (natural), Kalakrta (seasonal), Yuktikrta (induced)
<i>Kala (time)</i>	Ksanadi (natural divisions of time), Vyadhyavastha (stages of disease)
<i>Anala (digestive capacity)</i>	Sama (normal), Tiksna (acute), Visanta (irregular), Manda (dull)
<i>Prakrti (constitution)</i>	kata, Pinta, Kapha, Vatapitta, Vatakapha, Pittakapha, Sama
<i>Vardhakya?(age)</i>	&Ilya (infancy), Kaumara (childhood), Yativanci (youth), Vardhakya (old age)
<i>Sattva (mind)</i>	Sattvika (calm), Rajasika (active), Tamasika (dull)
<i>Satmeya (habits)</i>	Okasatmeya (habituated by practice), Des, asatmya (habituated by place), Kulasatmya (habituated by family)
<i>Ahara (food)</i>	Dhanya (grains), Phala (fruits), Saka (vegetables), Harita (spices and seasonings), Mamsa (meat), Ksira (dairy products), Jala (liquids), Thu (sugarcane products)
<i>Avastha (stages of disease)</i>	Sama-Miratna, Vega-Avega, Alpadosa-Bahudosa, kaladosa-Linadosa

from the Ayurvedic standpoint, the realistic way to understand nature is by becoming one with it.

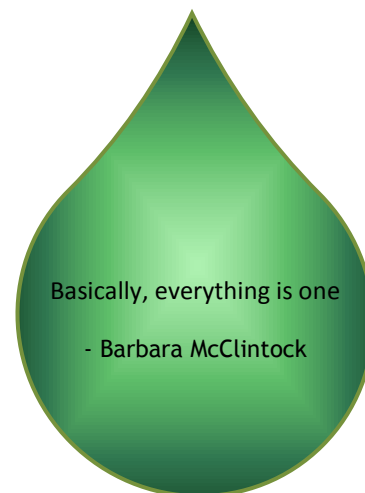
We can do this by using our mental apparatus and the five senses that serve as instruments of knowing, in a balanced way. The senses naturally move outwards to see, hear, touch, smell and taste. The mind can move both outwards with the senses or move inwards and experience an inner, non-sensory world. A mind that is in control of the senses and is totally free of the six divisive prejudices is said to be both perfectly objective and subjective. This is the mental state of Brahma, from which Ayurveda was said to be originally propounded. In such a state there is oneness with nature.

## AYURVEDIC CONCEPTS-

(Indianetzone.com)

At this point, it would help to demystify this mental state by pointing out that one can free the mind of the six prejudices through mental training of the sort described in the Yoga Sastras and in such texts as the Patanjali Yoga Sutras. In the Western tradition, too, mental training is essential for a seeker of knowledge. However, there is little systematic understanding of the different mental states; the 'scientific temper', which is meant to describe the ideal mental state of a

scientist, is explained in general terms and scientific training is limited to the use of analytical disciplines like mathematics and logic.



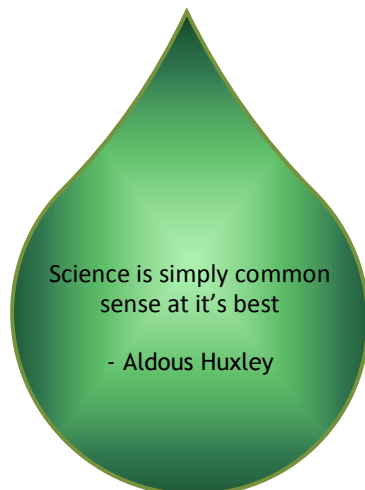
The science of Ayurveda is based on the recognition of six fundamental existential principles. These are Dravya (categories of being, of nine types), Guna (qualities, of

41 types), Karma (actions, of five types), Samanya (generic principle), Visesa (differential principle) and Samavaya (in separability principle). In the Western tradition, three basic existential entities are considered, namely, matter, time and space. In the Indian scheme of understanding, consciousness and mind are also existential entities.



The expression of the manifest world is understood to evolve from the subtlest non-material state of consciousness (*atma*) to the grossest material state of *prthvi* (solid). **Material and non-material existence is seen on a continuum.** Thus consciousness devolves into mind, and because of qualities like numerability (*Sankhya*), magnitude (*parimana*) uniqueness (*prthakiva*), conjunction (*samayoga*), disjunction (*vibhaga*), nearness (*paratva*) remoteness (*aparatva*), impression (*sanskara*) and casual relation (*yukti*), leads to the notion of time (*kala*) and space (*dik*) on the mental plane. The mind further devolves into the five states of matter, i.e., akasa, vayu, agni, ap and prthvi. All manifestations — small or big, subtle or gross, micro or macro, internal or external, organic or inorganic, living or non-living, unmodified or modified are created by a permutation and combination of these basic categories and reflect the combined effect of their inherent qualities and actions, similarities, distinctiveness and inseparability.

The purely subjective mind is expected to lead to accurate perception and cognition of subtler aspects of nature, whereas in the objective mode of knowing, the five senses and the rigour of logic (to process sense data) are used for perceiving the gross world. It is the combination of the subjective and objective ways of knowing that leads



to a holistic understanding of nature.

Another distinction between the Western and Ayurvedic traditions is that while the former only considers direct perception, induction and deduction as the means of knowledge, *apto-padesa* (knowledge gained by seers through revelation) is a distinctive feature of the Indian tradition.

The Ayurvedic definition of *Svastya* or health provides a good illustration of the holistic nature of the knowledge system. According to Ayurveda, the etymology of *Svastya* is to be established in oneself. *Svasthya* further implies equilibrium of body tissues, physiological functions, excretory processes, the senses and the mind. There is also the availability of sophisticated schemes that have been developed by Ayurvedic *Sastrakaras* for diagnosis, clinical examinations and for the admission of drugs into its materia medica. The scheme for diagnosis includes an in-built early warning system. The different stages of a disease's development are recognised in the Indian tradition and its advancement can be checked when it is diagnosed by its pro-dermal indicators.

Thus the schemes for medical treatment are also holistic in their approach. **The intention of treatment in all cases is to restore equilibrium.** The purification of the body via the *pancakarma* is a distinctive feature, as are the promotive modes of treatment.

**Ayurveda only admits a drug into its Materia Medica when it has been rigorously appraised in terms of its biological properties and systemic action,** classified into a therapeutic class, and fixed into a set of formulations and specifications provided for its processing and clinical application.

In this chapter we have tried to present the 'macrocosmic vision' of Ayurveda. Perhaps it is insufficient for making Ayurveda perfect or complete, although it has certainly contributed over the centuries to making Ayurveda a functional knowledge system. We hope that by reintroducing Ayurveda and showcasing its epistemology, we can inspire readers to truly open themselves to the implicit epistemologies that inform the several non-western knowledge

Holistic Scheme for Treatment			
Vyadhihara (curative)	Langhana (depletive)	Sodhana (purificatory)	Vamana (emes is), Vireka (purgation), Vasti (enemata) !Vaisya (errhines)u, Raktamoksa (blood letting)
		Samana (restorative)	Dipana (activating digestive and metabolic process), Pacana (digestion and metabolism), Ksut, Trt (fasting), Vyayama (exercise). Atapa (exposure to sun), Mama (exposure to wind)
	Ara <sup>p</sup> hana (replenishing)	Santana (restorative)	Snehana (adding), Stambhana (saving)
Urjaskara (Promotive)		Rasayano (restorative)	ratatopika (casual)
			Kunprovesilas (under controlled conditions)

systems that exist today.



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Every advance in science brings  
us face to face with the  
mystery of our own being

- Max Plank

## REMEMBERING DR. ANTIA

- S. JALAJA



*Here Smt. S. Jalaja, a retired IAS officer and former Secretary to Government of India, pays a tribute to Dr. Antia who integrated the principle of Trusteeship advocated by Mahatma Gandhi into his medical practice and successfully used the wisdom gained from it for the betterment of the poor, including leprosy patients. On 26<sup>th</sup> June 2012 we observe his fifth death anniversary.*

Although many of us do not remember him today, Dr. Noshir Antia is a legend who had a formidable reputation as a public health specialist during his lifetime. He is considered to be one of the architects of the National Rural Health Mission (NRHM), and was one of the members of the Apex committee on NRHM, chaired by the Prime Minister. His contribution to the publication of the famous ICSSR-ICMR Report on 'Health for All-An Alternate Strategy' is well-known. He also founded two

institutions- Foundation for Medical Research (FMR) as well as the Foundation for Community Research (FRCH) in Pune.

Dr. Antia was born on 8<sup>th</sup> February, 1922 in Hubly, Karnataka. After completion of his schooling and graduation, he joined the Grand Medical College in the year 1940 and took his MBBS degree. His becoming a doctor was purely accidental, although his desire was to become a Forest officer like his grandfather and uncle. He joined the Army Medical Corps during the Second World War. In 1947 he went to England to learn surgery, where he had the opportunity to be trained by the legendary surgeon Dr. Harold Gilles, considered as the father of Plastic Surgery. He also learned the management of burns at the Birmingham Accident Hospital and with Dr. A.B. Wallace in Edinburgh.

He returned to India in the year 1955 and joined the Jahangir Nursing Home Bombay. It was while working in that hospital that he had a chance to visit the Government Leprosy Hospital at Kondhua in the outskirts of Pune. There he started using plastic surgery for correcting disease induced deformities in leprosy patients.

Remembering those times he had described how he had to perform surgeries on leprosy patients, with the help of other patients, since no one was prepared to come forward to assist him. Often these surgeries were performed on a rickety wooden table or at times on the floor. It may be remembered that he could have earned thousands of pounds, had he decided to conduct cosmetic surgery on wealthy patients. But he chose to help those who had no one to care for, that too using very simple techniques, without using any costly equipment. Soon he became a pioneer in that field.

In the meantime, after completing three years at the Jahangir Hospital, he had joined the J.J Hospital, Bombay. There he was instrumental in setting up the first plastic surgery unit in India. While working there, he observed that most of the patients came from far-flung areas of the state spending a lot of their money and time for getting treated at the hospital. He was struck

**A humanist is someone who does the right thing even though she knows that no one is watching**

- Dick McMahan

by the intimate relation between poverty and disease, coming to the conclusion that poverty drives nearly 85% of the people in the direction of illness. He wondered whether instead of forcing them to travel long distances spending their time and money, if basic facilities could be provided in the village itself, prevention, promotion, as well as treatment of diseases could be simplified. With the support of his friend and industrialist Navel Godrej, he started training women in a place called Mandhua, just across the Bombay Harbour. Later on he took up a similar project in another place called Malshiras. He was convinced that if the women were trained in basic health care in simple language, demonstrating the benefits to them, then 80% of the health problems could be solved at the village level, 10% at the Taluka level and only the rest at the city hospitals. The project did not succeed due to resistance from local vested interests. But the valuable experience and insights gained from it were instrumental in his setting up two complementary institutions on research and community health namely the Foundation for Medical Research (FMR) and the Foundation for Community Health (FRCH), with the help and support of his well-wishers. The ICSSR-ICMR Report which he jointly prepared with the well-known educationalist late J.B Naik in the year 1981 was also based on these experiences. This Report is considered to be the blue print for health care delivery in India and contributed much to the drafting of India's Health Policy in the year 1983. Dr. Antia was very proud of those women whom he had trained. He often used to boast that he had learned basic health care from those women, instead of their learning from him.

Dr. Antia had invited me many times to visit the Parinche project near Pune. I finally could visit the project, along with him, sometime in the year 2006. Parinche is a village with a population of 3000 in Purandhar taluk near Pune, Maharashtra. It takes about an hour and a half drive from Pune to reach Parinche. During the journey Dr. Antia explained his vision of healthcare.

It occurred to me that the knowledge I gained about health care in that short time cannot be obtained by reading even several books on the subject. The core of his vision, as explained to

me during that journey, could be summarized as noted below:-

\* The concept of health in reality is very simple. It is we who have made it look very complex. It needs to be demystified to ordinary people.

\* Healthcare, including prevention and treatment of diseases, ought to be decentralized, with peoples' participation.

\* Every individual, family as well as community, should be made responsible for their own health.

\* The strength of our traditional systems also needs to be utilized in public health delivery.

\* The concept of health based on western science and technology is rooted in greed. It has corrupted the teacher, the preacher and the healer.

\* Modern medicine sees health only from the physical side and does not see the connection between the mind and the body.

\* In modern system we are treating our mistakes and failures. We have transformed health as illness and illness as profitable business.

\* Routine functions like taking the pulse, measuring the BP of a patient should not be mechanical, but should be a part of patient care.

\* The practices followed in the traditional systems teach us that systematic investigation does not need costly machines. Thereby the cost of investigations can be brought down considerably.

\* In the present healthcare system the rich are over-medicated, the middle class perplexed, and, the poor left to fend for themselves.

I was very much impressed by the simplicity and cleanliness of the centre. Two practitioners of modern medicine and one Ayurveda doctor were present at the centre. The centre has training facilities, besides having a small library for the use of the public. The centre also



provides information on public health to all. Diagnostic services were also available at a nominal charge at the centre.

Under the project women (called "Tai") from fifty villages were given practical training in basic healthcare in very simple language. The results were also demonstrated to them. They were paid a small amount of money every month, besides their travel cost to the project site. I found these women sitting in a circle under a grove of mango and Tamarind trees sharing their knowledge and experience amongst themselves. The more experienced amongst them called Sahayoginis provided leadership to the group as supervisors.



**Figure 11. Nargis, India's Seven Billionth Baby**

*Credit: Stock Photos*

The training covered health -related subjects like nutrition, drinking water and sanitation. They were also trained in veterinary matters so that they could take care of the health of cattle and poultry in the villages. Training on agriculture practices and allied subjects helped them to earn their livelihood. I realized that here health care is not viewed in isolation, but as something which is woven intricately to the fabric of the daily life of ordinary people. One more interesting thing I noticed was

that each of the Tai was connected to the main center with a VHF set so that she could clarify her doubts, seek counsel and guidance from the doctors. The VHF sets, I was told, were donated by a one of the well-wishers of Dr. Antia to the Centre. (Mobiles phones were yet to be popular at that time.)

We visited the home of one of the Tais. After talking to the Tai and her family members, I realized that the training had made her indeed very self- confident. The respect and support she received from the village sustained her. **Many of the Tais narrated their experiences, like urging girls to go to school, preventing incidence of female feticide, saving the lives of pregnant mothers and new born babies and the like.** They were able to collectively sell their produces in the nearby towns and earn better incomes.

**The outcome of the project was that 60% of the cases could be dealt by the Tais in the village itself, only 40% were referred to a public hospital.** It was also good to know that the Tais were accredited to the National Open School so that they could improve their career prospects.

We also visited a school nearby. **The children were trained to survey the local resources, including the local trees and plants. They also learned to test water quality in their village. They could also take up a campaign on construction of toilets in every house in the village. Dr. Antias' vision of health encompassed a world where everything is inter-connected.** In his view, the children should know the world around them intimately and get themselves involved in the life around them. I returned to Delhi enriched and enlightened by my experience of visiting the Parinche project.

The concept of ASHA (Accredited Social Activist) in NRHM has been modelled on the success of projects like Parinche. I remember that Dr.Antia had expressed

his concern about ASHA - that she should not be the last link in the official hierarchy of the healthcare system, that she should not be trained by Government officials only, but should be trained and mentored by voluntary organizations with good track records etc. He was also concerned about the implementation

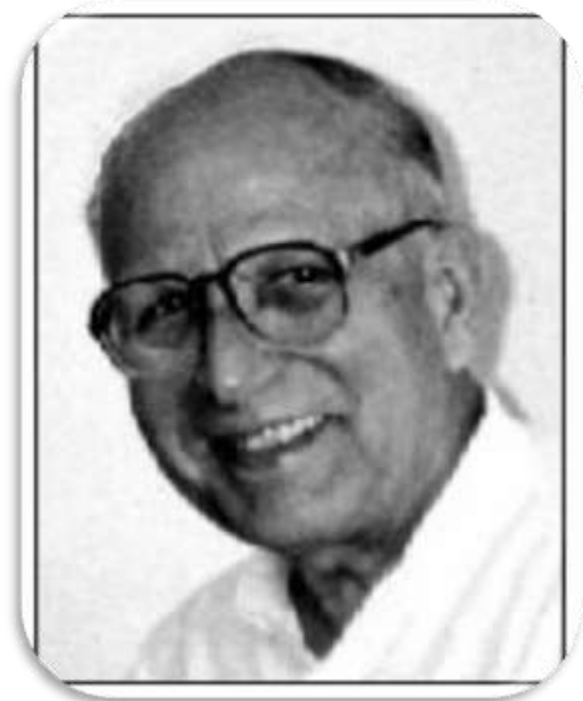
**Always treat people as an end  
in itself, never as a means to  
an end**

**- Immanuel Kant**

of NRHM in general. He felt that it should be implemented as a peoples' movement rather than as a government sponsored program. He felt that although the NRHM had taken into consideration the ICSSR-ICMR Report, it needs to be implemented in spirit.

We human beings have a unique ability in making every simple thing around us appear very complex and then find complicated solutions to deal with them. The greatness of Gandhi and Einstein lies in the fact that they could simplify everything around them which appear to be complicated. Dr. Antia was like them. **He demystified the concept of healthcare making it appear very simple, humane, and at the same time, very inexpensive.** His greatness lies in the fact that he was able to practice what he preached; He showed that Gandhi's philosophy could be successfully integrated with public health. **Even after being trained as a modern medical professional who had received the very best quality training abroad, he had the rare insight and vision to recognize the limits of modern medicine.** When more and more super- specialty hospitals are built around in the country, and when more and more sophisticated equipment and potent drugs invade the markets, when more and more doctors go in for specializations, it is convenient to forget people like Dr. Antia, who, firmly rooted in Indian soil and its traditions, advocated a model of healthcare based on prevention of diseases which is highly suitable for a poor country like India. Politicians as well as policy makers and health professionals therefore ought to take a note of his vision. Otherwise we will have a complex edifice of health infrastructure without a core.

Dr. Antia passed away on 26<sup>th</sup> June, 2007. Although he is not with us today his nobility, commitment and dedication to the cause of public health, and compassion for the poor will always remain with us as an inspiring presence.



*"I am very much a student of western science and technology and continue to use it effectively for solving many of the problems our people face. I am just as comfortable using the electron microscope at the Foundation for Medical Research as I am teaching village women with a hand lens under a tree in Foundation for Research in Community Health. Both serve a common purpose, namely, improving health. I feel that appropriate science and technology in every form and of every system should be utilized to solve our country's and its peoples' problems; not to glorify western technology for its own sake while denigrating our own. ...Elegance is trying to find simple solutions to complicated problems, not the reverse."*

What we observe is not nature  
but nature exposed to our  
mode of questioning

- Erwin Schrodinger

## ECONOMICS: GANDHI AND GLOBALISATION

(PART-1)



*Gandhi had perspectives on economics, although he had received no formal training to be an economist. Unlike conventional economists, his economic ideals were based on ethical and moral considerations and were centred, not on money, but, on the development of man to his highest level; Human dignity formed the core of his economic philosophy. For him economics did not stand alone--it formed an integral part of his world-view on the meaning and purpose of life. He was concerned about the standard of life rather than the standard of living of an individual, professed by conventional economists. To achieve it, he advocated simple living, concern for universal well-being, rural economy based on the principle of decentralisation, use of labour intensive technology and voluntary support to the poor, following the principle of Trusteeship. Economics, according to Gandhi, was a rejection of materialism.*

*He was an economist of the masses. "It is not surprising that his economic ideas are not expressed in the jargon of an economist, nor are they presented in the form of a scientific or a scholarly treatise. Nevertheless, it is possible to cull from his scattered writings and pronouncements a consistent body of knowledge in economics, that is as distinctive as to merit the name "Gandhian Economics", and, which has contemporary relevance, remarkable originality and attributes of an*

**Blessed are the young for they will not inherit the national debt**

**- Herbert Hoover**

*analytical contribution of a high order".*

*In this age of technological advancement Gandhi's thoughts on economics are considered by many to be old-fashioned and outdated. Others consider that accepting his views would mean going back on time, reversing many of the achievements made by mankind so far, with the aid of science and technology. Are these considerations true? How relevant are Gandhi's views on economics, especially when many countries across the world are today facing unprecedented economic crisis, the worst since the Great Depression? Our Team elucidates in two parts the relevance of Gandhian economics in dealing with the current Global economic crisis*



The deepening Global Economic Crisis has prompted economists, regulators and credit rating agencies and others to assert conventional wisdom, and, advise countries to follow the same path, which in the first instance, had led the world to this crisis. When truth in the form of Gandhi's wisdom stands before us so clear and shining, why do we continue to do what we were doing before we entered this crisis? Gandhi's views on economics have a bearing on how we deal with this crisis. Let's see what Gandhi himself had to say on the different aspects of the economics.

### ON ECONOMICS

In today's world economics is a specialised branch of knowledge, which, as such, is not concerned either with ethics or morality. 'Today economists are primarily concerned only with matters relating to creation of wealth, whereas Gandhi's economics



does not draw a distinction between economics and ethics. Economy that hurts the moral well-being of an individual or a nation is immoral. Supreme consideration is to be given to man than money.'

According to Gandhi "The economics that disregard moral and sentimental considerations are like wax works that, being life-like, still lack the life of the living flesh. At every crucial moment thus a new-fangled economic laws have broken down in practice. And nations or individuals who accept them as guiding maxims must perish". (Young India, 27-10-1921, p. 344) If we look carefully, it will be seen that economics today is bereft of ethical and moral underpinnings, as the only concern of people is to make money somehow, unconcerned about the exploitation, suffering and deprivation it causes to others and ultimately himself. 'The much-acclaimed western model which brought about prosperity to people within a short time, with such speed, is today groping in the dark to find out how best to come out of the deepening economic crisis'.

The words of Gandhi sound as if he uttered them today.



"We have for over a century been dragged by the prosperous West behind its chariot, choked by the dust, deafened by the noise, humbled by our own helplessness and overwhelmed by the speed. We agreed to acknowledge that this chariot drive was progress and the progress was civilisation. If we ever venture to ask 'Progress towards what' and

'progress for whom', it was considered to be peculiarly and ridiculously oriental to entertain such ideas about the absoluteness of progress." Another interesting thing you see when you watch the crisis carefully is the refusal of those affected by the crisis to even acknowledge their wasteful life-style and the enormous harm it has done to the limited resources of the earth'.



Preceding the global financial the melt-down the world saw three major wars-two Gulf wars and the Afghan war. The need for exploring peaceful solutions to issues before wars need not be emphasised. Violence inflicts enormous damage to the economies of the countries involved and could bring harm to the people. "A certain degree of physical comfort is necessary, but above a certain level, it becomes a hindrance instead of a help---Europeans will have to remodel their outlook if they are not to perish under the weight of comforts to which they are becoming slaves.'

**ON NON-VIOLENCE** To Gandhi, non-violence was relevant to even the domain of economics. This is what he had to say:-

"The extension of the law of non-violence in the domain of economics means nothing less than the introduction of moral values as a factor to be considered in regulating regulating international commerce."

#### ON GLOBALISATION

Some people like to believe that Gandhi was against Globalisation. Gandhi, though born in India, lived in England and South Africa during much

An economist is a man who states the obvious in terms of the incomprehensible

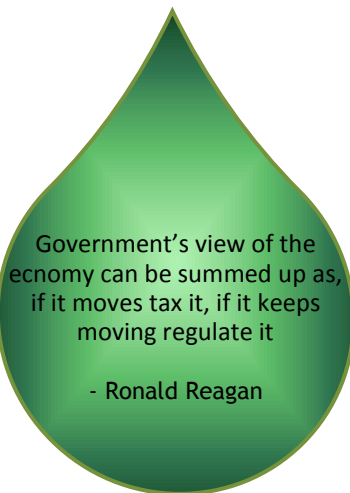
- Alfred Knopf

of his formative years. He had imbibed the thoughts of Tolstoy, Ruskin, Thoreau and others from their writings.

Gandhi's championing of Swadeshi (local self-sufficiency) and non-cooperation were centred on the principles of economic self-sufficiency and not on some archaic notion of opposing anything foreign."

**Gandhi sought to target European-made clothing and other products as not only as symbols of colonialism, but also the source of mass unemployment and poverty.**

He correctly identified economic motives to be the basic principle of colonialism and imperialism. The only way to attack and weaken the colonial forces would be to attack the basis of economic profit the British earned from its colonies." "Gandhi knew that with the globalisation of economy, every nation would wish to export more and import less to keep the balance payments in their favour resulting in perpetual economic crisis, unemployment, disgruntled and discontented human beings. "According to me the economic constitution of India and, for the matter of that, the world should be such that no one should suffer from want of food and clothing. In other words, **everybody should be able to get sufficient work to enable him to make the two ends meet. And this ideal can universally realized only if the means of production of the elementary necessities of life remain in the control of the masses.** These should be freely available to all as God's air and water are or ought to be; they should not be made vehicle of traffic for the exploitation of others. This monopolization by any country, nation or group of persons would be unjust. The neglect of this simple principle is the cause of destitution that we witness today not only in this unhappy land but other parts of the world too "(Young India 15-11-1928, p381)



Gandhi believed that the model he had suggested was applicable universally. He felt that the consumers everywhere should be concerned not only about the cost and quality of the product, but also, should know which section of the society produced it, and, whether it was produced ethically. Today when we see a consumers being concerned about the ethical issues in respect of mining of gold, diamonds and production of coffee, we could appreciate Gandhi's concern on the subject. Gandhi's views on home-spun clothes and home-made things have been ignored by people at large on consideration that we get cheaper, easy-to-use goods produced in the mills and factories in the open market. This is what Gandhi had to say "Foreign clothes may be better and cheaper than the home-spun Khadi, but the relentless use of the imported fabric would lead to unemployment of thousands of villagers who, traditionally by spinning and weaving, have made clothes."

## INDUSTRIALISATION AND MASS PRODUCTION

"What motive can there be for the expansion of the economy on a Global scale other than the desire for personal and corporate profit? With mass production, people leave their villages, become cogs in the machines, live in shanty towns –fewer and fewer people are needed for work.

Under the British, production was centralised, mechanised and industrialised. **According to Gandhi what is needed is not mass production, but production by the masses, restoring dignity of work done by human hands.** "Mass production is only concerned with production, whereas production by masses is

concerned with the product, the produces and the process.”

‘Body labour was at the core of these occupations and industries, and there was no large-scale machinery. For when a man is content to own only so much land as he can till with his own labour, he cannot exploit others. Handicrafts exclude exploitation and slavery’.

Gandhi felt that solution to the economic problem through continuous increase in material production was a false solution. ‘Ever increasing wealth will not ensure happiness because of the tendency of wants to multiply even faster. The experience of rich nations and the rich people in poor nations testify to its validity. Revival of the economy is made possible only when it is free from exploitation. Industrialisation on a massive scale will lead to passive or active exploitation of the people’. Gandhi was opposed to the use of machinery in production. “Mechanisation is good when the hands are too few for the work intended to be accomplished. It is an evil when there are more hands than required for the work as in India’ “If I could produce all my country’s wants by means of 30,000 people instead of 30million, I should not mind it, provided that the 30 million are not rendered idle and unemployed’. He made it clear that he was not against the use of tools, instruments and machines that would lighten the burden of millions of workers. While indiscriminate proliferation of machinery is harmful, under proper social control machinery could confer benefits on society. Under proper conditions it could be valuable to society. The character of the product will be determined by social necessity and not by personal greed.

He could visualise electricity, ship-building, machine making etc. existing side by side with village handicrafts. However, he believed that industrialisation involves exploitation of poor countries’ raw materials.

Competition and rivalries among developed countries would lead to war and destruction of human life and

material resources. Besides he also pointed out that in industrialisation the cost of investment per worker is very high. Therefore, if every unemployed person is to be engaged in work a very high investment would be needed. The demand on non-renewable resources would also be very huge.

Although Gandhi’s views on machines evolved over a long time, his original views are valid even today. While USA and countries in the Euro-zone are facing high unemployment, we need to take a long look at what Gandhi had said about it. Although mechanisation achieved so far appears irreversible, it would be prudent if we could find a balance between the two approaches.

#### THE SEVEN BLUNDERS

- Wealth without work
- Pleasure without conscience
- Knowledge without Character
- Commerce without Morality
- Science without humanity
- Worship without Sacrifice
- Politics without Principles

-----M.K.GANDHI

**A study of economics usually reveals that the best time to buy anything was last year**

- Martin Allen



## POEMS:

-MOHANDAS WARRIER

## DEATH'S MANY LIVES

Dry pestilence reigns,  
 Yes, a permanent parchedness,  
 With pouted lips, stickiness long lost,  
 And broken, grinless, discolored teeth,  
 Chewing all forgotten; an eerie silence.  
 Shiny, bright, protruding orbs stare  
 Vacantly into the rainless heat;  
 Huddled bundles of skin and bones,  
 Far removed from the world's glare.  
 Reduced to silent geology,  
 To be dug out by many a morrow.  
 Bundles of vultureless carcasses,  
 Hyenas far retreated,  
 Cry shame to a greenless Mother Earth!  
 Born to pass this gentle, creeping terror  
 In dusty graves of darkened hopelessness,  
 Too weak to cannibalize on the feebler, Stupefied  
 mouths of permanent loss wide ajar; No flies to greet  
 the living dead!

## HOPE

Ah! Thou lonely sentinel!  
 The shimmering light  
 At the end of the tunnel.

When the hot desert wind blows

And the sandstorm rises,  
 In raving madness, gone totally berserk  
 Thou cometh as the solace of the placid oasis,  
 With thy gently swaying palm trees and shade.  
 When tossed mercilessly up and down in the high seas,  
 As giant waves roar an imminent end,  
 Like the distant lighthouse with waving lantern,  
 Thou lifteth the heart with thy glimmer and shine.  
 In the darkness of nadir, when the end seems near,  
 Thou gazeth as yet another tweak in twilight.  
 Or cometh as the rising dawn with yet more sunshine,  
 After the pitch blackness of a midnight storm.  
 Thou art indeed the living legend of divinity.  
 With thee all is not lost,  
 Things never in vain.

**ART&CULTURE: AUVERS-SUR-OISE:  
TRACING THE STEPS OF VAN GOGH**

-Sudha Shrotria

*Vincent William van Gogh, the famous post-impressionist artist from Holland has left an indelible mark in the minds and hearts of all art loving people. His paintings reflected the turbulent feelings and the intense emotions of a tormented soul. Plagued by mental illness, melancholy and extreme loneliness he found release in painting. His famous paintings, especially the Sun Flower, Irises, and Starry Nights, Wheat fields are still popular, despite the passage of time. Although Van Gogh is said to have sold only one painting in his life time, copies of his paintings worth millions of dollars are still being sold all over the world, which itself is a tribute to the genius of a rare artist and his emotional appeal. Here Ms Sudha Shrotria writes about Auvers-sur-Oise where van Gogh spent his final days and met his tragic end.*



**Figure 12. Self Portrait with Bandaged Ear, Easel and Japanese Print, January 1889** Credit: National Gallery of Art, Washington D.C

A century ago Van Gogh, the artist wrote in a letter to his brother Theo, 'Auvers is profoundly beautiful.' The same can be said of Auvers even today. It still retains the magic of yester years that made Van Gogh and other artists fall in love with this beautiful village.

**An artist is not paid for his labour but for his vision**

**- James Whistler**

Located twenty two miles from Paris, between the river Oise and the Vexin plateau, the drive to Auvers takes just thirty minutes. Heading northwards out of Paris, though the journey to

Auvers through the 'red belt' does not seem very promising, the high rise blocks and dreary row of houses soon give way to woodlands and the valley of Oise from which emerges the village of Auvers. A place of distinct nineteenth century charm, older parts of Auvers are protected to preserve the architectural heritage and old buildings of historical interest.



**Figure 13. Landscape** Credit: National Gallery of Art, Washington D.C

On entering the peaceful village of Auvers, the landscape and buildings look exceedingly familiar. The town hall and the inn facing it, the corn fields, the gardens, the flowering chestnut trees, the row of nineteenth century houses and above all the church which stands out as a distinct landmark of Auvers are all familiar sites. These and many others have been subject matter of paintings by famous artists – Daubigny, Pissaro, Cezanne and Van Gogh. These views and sites even today stand as a living reminder of the inspiration of these great artists.

Van Gogh, the first Dutch master since the seventeenth century did not become an artist till 1880.



**Figure 14. The Potato Eaters**

*Credit: National Gallery of Art, Washington D.C*

He died ten years, spending his last days in Auvers where he produced some great works of art only to be discovered after his death.

Van Gogh's earlier interests were in literature and religion. He worked as a preacher among the poverty stricken coal miners in Belgium. His profound dissatisfaction with the values of industrial society, and his intense feelings for the poor dominated the earlier paintings of his pre- impressionist period (1880-

I dream of painting then I paint  
my dream  
- van Gogh

85). *The Potato Eaters* reflects this intensity. It was only after he met Degas, Seurat and other leading French artists in Paris whose influence on him was with colour so great that his paintings began to blaze.



**Figure 15. The Starry Night**

*Credit: National Gallery of Art, Washington D.C*

The *Starry Night* Though Paris opened his eyes to the sensuous beauty of the visible world. Though Paris opened his eyes to the sensuous beauty of the visible world, painting for him was a vessel for his personal emotions. In 'Wheat field and Cyprus Trees' both the earth and sky dominate vibrantly. The wheat fields resemble a turbulent sea, and the hills and clouds a storm in motion.

Besides the landscapes, Van Gogh made several self-portraits, some of which reflect his disturbed state of mind. To Van Gogh it was colour not the form that determined the expressive content of his paintings. The wheat fields at Auvers formed the colourful subject of several of Van Gogh's paintings.



**Figure 16. The Sunflowers**

*Credit: The Van Gogh Gallery*

An interesting way to explore Auvers is to walk along the paths taken by Van Gogh through the countryside depicted in his paintings. The route covering Van Gogh and the wheat fields takes just about two hours. Colour reproductions of each canvas developed by the Memoire des Lieux Foundation are set up at the spot where the artist had set up his easel.

Mounting the slope from Manoir des Colombiers and taking rue Daubigny where the old wooden stairway at Auvers stands, the reproduction of the painting of the stairway by Van Gogh, displayed near the stairway comes alive.

The thrill of walking the same wooden steps, or standing opposite the town hall in the heart of the village and looking at the Ravoux inn is beyond words. The lively café which was the meeting point of

The way to love life is to love many things

- van Gogh

artists still shelters a tiny room with a lone chair, full of memories of Van Gogh. The 'Ravoux inn' also popularly called, 'Auberge ravoux' was known as the 'House of Van Gogh.' In the village, Van Gogh was popularly known by his first name, Vincent.



**Figure 17. The Wooden Stairway**

*Credit: Author*

At the time of painting his 'self portrait' Van Gogh had begun to suffer fits of mental illness that made painting increasingly difficult for him. As recommended by his brother Theo he came to Auvers to visit Dr Gachet, for treatment of his mentally disturbed state. Auvers was his home for the final weeks of his life.

The small room at Ravoux Inn with a landing lit by a rickety window in the roof was where he stayed at a cost of 3.50 French Francs a day for boarding and lodging. During his stay in Auvers Van Gogh painted in a frenzy some eighty canvasses. When he died in this tiny room in the early hours of July 29, 1890 his brother Theo found under his iron bedstead and stacked behind it recently painted canvasses that are now among the most famous paintings in the world.



**Figure 18. The staircase leading to the Church**

*Credit: Author*

Many of his paintings are in Musee d'Orsay in Paris and Musee Van Gogh in Amsterdam. The paintings centred around the sites of Auvers depict various forms, the Town Hall, the Church, the Inn, the Innkeeper and his daughter, Boats by the River, the Cornfields and the Old Cottages to name a few.



**Figure 19. The Garden at Daubigny**

*Credit: The Van Gogh Gallery*



**Figure 20. Van Gogh's room in Ravoux Inn**

*Credit: Author*

As one walks around the village, one can see the same scenes and compare them with Van Gogh's vision of them through the series of panels with reproductions of his work posted strategically around the village.



**Figure 21. The Garden at Daubigny on display** *Credit: Author*



Interestingly, Auvers is bereft of any commercialism or souvenirs of the types sold at various tourist places. 'Maison van Gogh' is like a place of pilgrimage rather



Figure 23. The Van Gogh Graves

*Credit: Author*

than a tourist high spot. This is how one feels climbing the narrow staircase to see the empty room where the artist died and the one next to it occupied by another Dutch painter Anton Hirschig, which is furnished as it was in his day. It is an intensely moving moment to stand in his room and think about his life.

***I would rather die of passion than  
boredom***

***- van Gogh***



Figure 22. Notre Dame Church

*Credit: Author*

On leaving the Ravoux inn to the left is rue du General de Gaulle where lies the Van Gogh park hosting the statue of Van Gogh sculpted by Zadkine.

It vouches for the affection the people of the village felt for him. A replica of the same statue can be found in his birth place Zundert, in Holland. The two most important places of pilgrimage which are poignant reminders of Van Gogh, are the Notre Dame church and the cemetery where he was laid to rest.

The path via Daubigny's garden leads to the famous church which was painted by Van Gogh. Despite several upheavals, Notre Dame still has the solemn architecture of the Roman Gothic period. The solid chevet made famous throughout the world by Van Gogh's paintings still inspires many an artist.



**Figure 24. Painting of the Notre Dame Church**

*Credit: Van Gogh Gallery*

The gravelled path from the church leads to the wheat fields on either side. All around the plateau are

field upon field of seemingly endless wheat fields found in Van Gogh's paintings. Taking the Emile Bernard street one reaches the cemetery and the graves of Vincent and Theo Van Gogh. The place where Vincent Van Gogh was laid to rest has become a shrine for art lovers all over the world. In 1914, his sister-in-law brought her husband Theo's body to lie next to Vincent. Ever since the two brothers have been united under the twin head stones covered with ivy. The ivy is symbolic of the deep attachment the two brothers had for each other. The simplicity of the two graves is a moving memorial of the two brothers. Auvers is still an arena for the creative talents of resident painters, photographers, sculptors, and designers. The quiet country lanes and narrow streets are places where one can wander and dream at the same time just as Van Gogh did.



**Figure 25. Wheatfield with Crows. A doom filled painting with threatening skies and ill-omened crows reflecting the artist's state of mind in his final days.**

*Credit: 1890, Van Gogh Museum*  
Life Stream

**POOR RICHARD'S ALMANACK AND THE AMERICAN VALUES---** LIFE STREAM TEAM



**Benjamin Franklin (January 6/17, 1706 to April 17, 1790) was one of the Founding Fathers of the United States of America. He was called 'the most accomplished American of his age and the most influential in inventing the type of society that America would become'. He earned the title of First American for his invaluable contribution to the cause of American independence. His journey from a boy selling pamphlets printed in his brothers' print shop in the streets to the exalted position of a statesman and one of the Founding Fathers of America symbolised the very values he propagated. One of the vehicles through which he propagated those values, was 'Poor Richard's Almanack'. Who was Poor Richard? What was Poor Richard's Almanack? How did the Almanac shape American values? Life Stream Team found replies to these questions.**

**Benjamin Franklin** was born in Boston on January 17, 1706 .He was the tenth son of Josiah Franklin. His father wanted Ben to be a clergy man. However, he could not afford the schooling necessary for it. Young Franklin enjoyed reading, as he worked as an apprentice in the print shop run by his brother. "After helping him compose pamphlets and set type which was gruelling work, the 12 year-old Benjamin would sell the products in the streets."(A Quick biography of Benjamin Franklin).`When he was 15, his brother started the New England Courant, the first newspaper in Boston. Young Ben wanted to write for the paper,

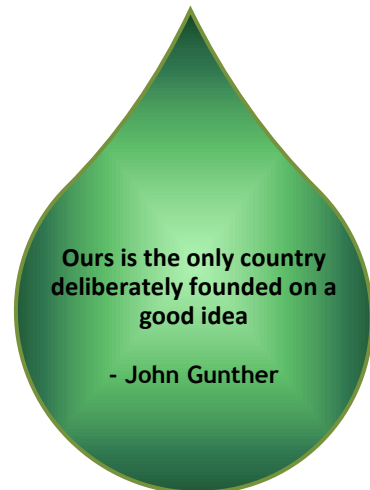
but knew that his brother would not let him. So he started writing letters in the name of a fictional widow Silence Dogood. 'Dogood was filled with advice and very critical of the world around her, particularly concerning the issue of how women were treated. Ben would sneak the letters under the print shop door at night, so no one knew who was writing those pieces. They were a smash hit and everyone wanted to know who the real Silence Dogood was. After 16 letters Ben confessed that he had been writing the letters all along".

In 1773 he started publishing Poor Richards' Almanack. Almanacs were very popular in colonial America. They were published annually covering a variety of topics including weather forecasts, recipes, practical household hints, puzzles and homilies. Franklin published his almanac adopting the pseudonym Poor Richard or Richard Saunders, a poor man who needed money to take care of his ailing wife. 'He borrowed the name from the 17<sup>th</sup>

century writer of Appollo Anglicanus -a popular London almanac. Poor Richards' persona is in part based on Jonathan

swifts' pseudonymous character "Isaac Bicker Staff". In later years the original Richard Saunders gradually disappeared, replaced by a Poor Richard'.

The publication of the almanac appeared continuously from 1732-1758 lasting for 25 long years. It became a bestseller in the Colonies, with the circulation reaching 10,000. His clever and extensive use of word play, poems, witty aphorisms and proverbs, and lively writing made it very popular. Many of these aphorisms live on in American English. 'Several of these were borrowed from an earlier writer, Lord Halifax. Franklin made a selection of these and prefixed to the almanac as the address of an old man to the people attending an auction'. Through them he stressed the value of



thrift, industry, frugality, curtesy etc. His book which included them-The Way to Wealth-was popular both in England and America. Some of his aphorisms/phrases may not be acceptable to people in modern times. However, we should remember that the Almanac was a reflexion of the social norms and conventions followed in that period. Further, the thoughts and values he propagated through the Almanac reflected his own character, values and beliefs which were not appreciated by all. Nevertheless, they influenced the language and cultural ethos of America and left an indelible mark in its history. Napoleon Bonaparte, impressed by the Almanac, got them translated into the French language. The Almanac was reprinted in England. The King of France was believed to have named a ship after Richard.

Franklin was a multi-faceted genius. He was aptly called 'the harmonious human multitude'! He was an acclaimed author, editor, printer, publisher, postmaster, scientist, musician, inventor, satirist, postmaster, political activist and theorist, statesman and diplomat. He became wealthy publishing the Almanac and the Pennsylvania Gazette. He became famous as a scientist with his experiments with electricity and invention of the lightening rod. He also developed the Franklin stove, a carriage odometer, and the glass harmonica. He was a tireless campaigner of colonial unity and an author and spokesman in London for several colonies. He was an accomplished diplomat and became the first US Ambassador to France. He was the US Post Master General, and, later on, became the Governor of Pennsylvania. His testimony before Parliament helped the repeal of the much hated Stamp Act. He set up the first lending library in US and the first Fire department in Pennsylvania. He played a major role in the setting up of the Pennsylvania University. He was the first president of the American Philosophical Society. 'He was foundational in defining American ethos as a marriage of practical and democratic values of thrift, hard work, education,

community spirit, self-governing institutions and opposition to authoritarianism both political and religious with the scientific and tolerant values of the Enlightenment". He freed his slaves at the end of his life and became one of the most prominent abolitionists.



Photo:1739 edition of the Almanac

Franklin developed his personality by dint of his hard work and merit. He sought to cultivate his own character by having a plan of 13 virtues – temperance, silence, order, frugality, industry, sincerity, justice, moderation, cleanliness, tranquillity, chastity, and humility. Both as the fictional widow 'Silence Dogood' and Poor Richard he emphasised these virtues in his writings. These were the very values which are now called the American values.

'Franklin confessed that he himself did not work on all of them but one at a time. While he did not live completely by these virtues and by his own admission, fell short of them many times, he believed the attempt made him a better man contributing greatly to his success and happiness.'

Franklin died on April 17, 1790 at the age of 84. "His electric personality still lights the world'.

America's greatness is not found in the size of its government: America's greatness resides in the hearts and minds of its people

- Rick Perry

## THUS SPOKE POOR RICHARD

Hunger never saw bad bread (1773)

Great Talkers .Little doers.

Fools make feasts and wise men eat them.

He's' a fool that makes his doctor his heir.

After three days men go weary, of a wench, a guest and weather raining.

You cannot pick roses for the fear of thorns.

Without justice courage is weak. (1734)

No man has ever been glorious who was not laborious.

Necessity never made a good bargain. (1735)

Poverty wants some things, luxury many things and Avarice all things.

Marys' mouth costs her nothing, for she never opens it but at others expense.

A good lawyer is a bad neighbour (1737).

Well done is better than well said.

Reading makes a full man, meditation a profound man, discourse a clear man (1738)

He who falls in love with himself will have no rivals (1739).

An empty bag will not stand upright (1740).

Let no pleasure tempt thee, no profit allure thee, no ambition corrupt thee (1741)

He who sows thorns should never go bare feet (1742).

The sleeping fox never catches poultry up! Up! (1743).

What you would seem to be, be really (1744).

A small leak will sink a great ship (1745).

When the wells dry, we know the worth of water. (1746).

A good example is the best sermon (1747).

Lost time is never found again (1748).

Having being poor is no shame, but being a shamed of it is. (1749)

Hunger is the best pickle (1750).

We may give advice but we cannot give conduct (1751).

Children and princes quarrel for trifles (1752).

He that best understands the world; least likes it (1753).

If you'd know the value of money, go and borrow some (1754).

Doors of wisdom are never shut (1755).

Love your enemies for they will tell you your faults. (1756).

The way to be safe is never to be secure (1757).

## SOURCES

1. Poor Richard's Almanack-Wikipaedia;
1. A Quick Biography of Benjamin Franklin – [www.ushistory.org](http://www.ushistory.org)

## GOLD WITH FRAGRANCE: THE NAVARA RICE FROM KERALA

-Dr.V.Nampoothiri



Figure 26. Njavara Rice

Credit: njavara.org

*Dr. Namboothiri is a renowned practitioner and scholar of Ayurveda. He was the Principal of the grand old Ayurveda College, Trivandrum. He also served as Director Medical Education, Kerala and also in the Kerala Unit of the National Rural Health Mission (NRHM). Readers may like to know about 'Oushadha kanji' or medicinal porridge prepared from Navara rice boiled with herbs, which has become a part of the life and culture of Kerala.*

Navara a rice variety indigenous to Kerala, bestowed with extra short duration and is famed for its use in Ayurveda. As it seems to have originated in a limited area and did not spread appreciably; it can be considered a crop endemic to Kerala. Cultivation of this variety in Kerala is said to have recorded from 2500 years back. Due to several reasons, this variety was on the verge of extinction a decade ago. Since its medicinal and nutritive properties have now gained recognition, cultivation of this variety has started gaining much attention in recent times.

There are two types of Navara rice based on differences in glume colour: the black glumed and the golden yellow glumed varieties. In the black glumed variety the seed colour is red.

This variety is highly resistant to diseases and is grown in northern Kerala. It matures in about 60-90 days and reaches more than one meter in height. The golden yellow glumed variety is grown in the second cropping season. The grain is golden yellow and the seed colour is red. It requires 60-90 days to mature and on maturity the crop is susceptible to lodging and diseases. It has a higher yield than the black glumed variety. It is believed that Navara cultivated in upland areas is more potent medicinally. The farmers speak of Navara as 'Gold with fragrance' because if a farmer had a stock of Navara seeds with him, he could earn a good price in any season.

### Synonyms of Navara in Ayurveda

Shashtika, Shastihayana, Shashti Sali, Garbha paki Shashtija, asadvayodbhava, Snigdha Tandula Kakalakam Shashtivasaraja

### Taxonomical order

Kingdom - Plantae – Plants  
 Sub kingdom Tracheobionta – Vascular plants  
 Super divn Supermatophyta – Seed plants  
 Division - Magnoliophyta – Flowering plants  
 Class - Liliopsida – Monocotyledons  
 Subclass - Commelinidae  
 Order - Cyperales  
 Family - Poaceae  
 Genus - Oryza L.  
 Species - Sativa  
 Botanical Name : Oryza sativa Linn.

### USE OF NAVARA IN AYURVEDA

Navara rice is traditionally used in Ayurveda for specific treatment like *Panchakarma*. The *Susruta Samhita* (c. 400 B.C.) praises *Sastika* (the paddy which matures in 60 days) as being sweet in taste and digestion and pacifying *vayu* and *kapha*. The *sastika* is light, mild, demulcent and impart strength and firmness to the body. The *Ashtanga Samgraha* of *Vagbhata* (c. 4<sup>th</sup> century A.D.) describes the *sastika* as being unctuous, constipating, easily

No great man lives in vain: the history of the world is the biography of great men

- Thomas Carlyle

digestible, sweet, and cold in potency, mitigating all three doshas and of being two kinds – gaura (white) and asita-gaura (blackish-white). It has been used for curing Rheumatism in the folk medicine in Kerala. The 'shastikathailam' extracted from the bran of the rice is used for curing neurological diseases, body pain and eye disorders. The black-glumed Navara rice has been used in Ayurveda from the age of Charaka-600BC.



Figure 27. Navara Field

Credit: Stock Photo

## NUTRITIONAL AND HEALTH BENEFITS OF NAVARA

Navara has been used traditionally to remedy the ills of the respiratory, circulatory, digestive and nervous systems in the *Panchakarma* treatment of Ayurveda. *Njavarakizhi* and *Njavaratheppu* are the two major treatments in Ayurveda for conditions such as arthritis, paralysis, neurological disorders, degeneration of muscles and tuberculosis. It is also used for treating lactating mothers and anaemic children. In *Njavarakizhi* (pindasweda) *Njavara* rice is boiled in *Kurunthotti Kashayam* (a decoction of sida root and milk). It is then enclosed in cloth pouches (kizhis) and is used for massaging. In *Njavaratheppu* a paste of boiled *Navara* rice of light warmth is applied on the body. It is recommended for people who are unable to use the *Kizhi*. Here again the rice is boiled in *Kurunthotti Kashayam* (decoction).

Be careful about reading health books. You may die of a misprint.

Mark Twain

*Navara* rice is used in the treatment of psoriasis and *Navara* bran is used for ulcers. A paste made of *Navara* rice powder is used in snake bite. For urinary tract problems, *Navara* root is boiled in water and the decoction is used as a diuretic. In the month of *Karkidakam* (Monsoon) in Kerala when the region receives the south-west monsoons, *Navara* gruel is included in the diet to help develop immunity. (Please see the recipe) *Navara* is a health food for people of all ages. *Navara* rice powder cooked with jaggery and milk is found to be a nourishing food for babies. Boiled milk mixed with cooked *Navara* rice is easily digestible and is used as a health food for aged people.



Figure 28. Navarakizhi

Credit: Krishnanendu.org

Various research institutions in Kerala are now conducting research on the therapeutic aspects of *Navara*. The Regional Research Laboratory, Trivandrum is experimenting on the nutritional and therapeutic uses of *Navara* rice and bran; similarly Kerala Agriculture University is conducting its own experiments as the yield per acre of this variety is considered to be low. The Rajiv Gandhi Institute of Bio Technology is doing DNA fingerprinting of *Navara* and the Dept. of Biochemistry, University of Kerala, Trivandrum is conducting a project on the anti-inflammatory effects of *Navara*. All these institutions are using *Navara* rice, roots and bran from the *Navara* Eco Farm.

## NAVARA PREPARATIONS

### OUSHADHA KANJI (MEDICINAL PORRIDGE)

A variety of medicinal gruels or soups are prepared in Kerala using Navara rice as the main ingredient. It is said to pacify all the three doshas (vitiations) in the body mentioned in Ayurveda. The gruel as used in recuperative diet and also for rejuvenation of the body during the monsoons. The rice is boiled with dried herbs and spices and taken mixed with milk or coconut milk, seasoned with ghee. There are many types of medicinal gruel. A simple herbal gruel can, however, be prepared at home. As it is difficult to procure the herbs from the neighbourhood, as used to be in earlier times, one has to depend on the medicinal kits sold in authentic Ayurveda stores.



Figure 29. Navara Kanji (Pudding)

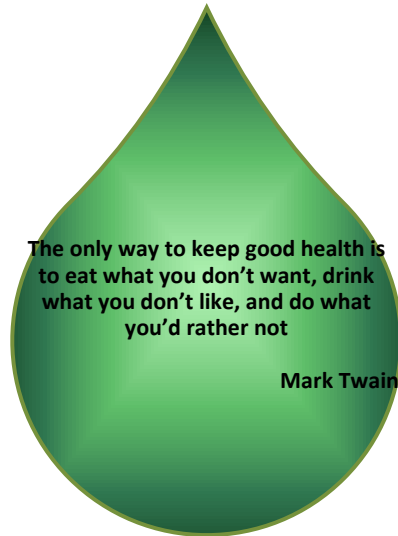
Credit: Krishnanendu.org

#### Ingredients: (For one person)

Cooking Time: about half an hour

1. Navara rice (with bran) 100 gms
2. Two large spoonful- Kashya marunnu (powder of 21 medicinal herbs) from the kit
3. One to two spoons medicinal powder (powder of 13 types of medicine/spices) from the kit
4. 5 gram methi (fenugreek) seeds/ashali
5. Water-1 ½ litres

6. Milk /Coconut Milk-1/2 cup
7. Two spoons of small onion-chopped
8. Ghee (clarified butter) for seasoning



Take water in a clean mud pot with lid. Boil two large spoonful kashaya marunnu for 5 minutes. Sieve the herbal water and boil rice in it with 5 mgs each of Methi (Fenu greek) seeds and Ashali. When fully cooked add the medicinal powder from the second kit and mix well. Add milk/coconut milk. Once fully cooked, season with small onions fried in ghee (curtesy: internet) Navra Pulav prepared similar to commonly prepared Pulav.

### NAVARA SALAD

Prepared with boiled navara rice, germinated green gram, diced and blanched carrots and beans, fresh cucumber, Pomegranate seeds, honey or squeezed lemon.



### NAVARA KICHDI

Navara Kichdi with Navra rice, green gram, white gourd, onions ginger seasoned with cumin seeds, red chillies, chopped garlic in Ghee.





### NAVARA PAYASAM

(pudding ) made out of boiled Navara rice, jaggery and coconut milk, flavoured with cardamom powder and seasoned with cashew.



**It is health that is the real  
wealth, not pieces of silver  
and gold.**



### BANGARAM-A CORAL PARADISE

-Vishakh (Photo credit- author)

*A visit to the coral islands of the Lakshadweep is an unforgettable and exhilarating experience. Among the islands of Lakshadweep, Bangaram is the one considered to be the most beautiful. It is considered to be one of the most prized tourist destinations in the country. Here we have included a brief account of the island with accompanying photographs by Vishakh. Vishakh is settled in New York and is working for JP Morgan, USA. He visited the island last December.*

Lakshadweep is known to be one of world's most spectacular tropical island systems. It encompasses 32 sq. km of land and 4200 sq.km of lagoon area, rich in mineral wealth. Out of 39 islands and islets only ten are inhabited, namely Agati, Amini, Andrott, Bitra, Chetlat, Kadamat, Kalpeni, Kavratti, Kiltan and Minicoy.

#### Formation

The theory about the formation of these islands is indeed very fascinating. Apparently the base of the islands below the reefs is a volcanic formation over which the corals settled and built fringing reefs which had transformed to barrier reefs and finally to atolls, due to

geographic submergence of the volcanic base. The Lakshadweep archipelago comprises of twelve atolls, three reefs and five submerged banks. Atolls are built on thick layers of dead corals. Bangaram is an atoll or coral island encircling a lagoon. Agatti and Bangaram are connected by a shallow submarine ridge.

**Settlements** Small settlements started in the islands of Amini, Kavratti, Andrott and Kalpeni first and then spread to the other islands during the rule of the last Chera king of Kerala. A mention is made of the islands in Pallava inscriptions of the 7th century AD. They became a part of Chola Empire in the 11th century AD. The Amini group of islands came under Tipu Sultan in 1787; thereafter fell into British hands after the 3<sup>rd</sup> Anglo-Mysore War.



**I dislike feeling at home  
when I am abroad**

**- GB Shaw**



The remaining islands came under the Arakkal Family of Kannur in return for an annual tribute to Tipu and attached to Malabar district under the Madras Presidency during the British Raj. Under the British, the islands came to be known as Laccadives and remained a part of Malabar in Kerala and after independence became a Union Territory. These islands have a total population of 60595 as per the 2001 census.



**Language spoken** Except in Minicoy, a dialect of Malayalam called Jasery is spoken, while in Minicoy the language spoken is Mahl, similar to that spoken in the Maldives.

**The advent of Islam** in the islands dates back to the 7<sup>th</sup> century AD. St. Ubaidulla of Mecca, on a mission to spread Islam around the world, landed in the islands after a ship-wreck. His grave is located in Andrott Island. Today 95% of the inhabitants of the islands are Muslims. This is true with Bangaram also. Those who stay in Bangaram go by boat to Agatti on Fridays to offer their prayers.

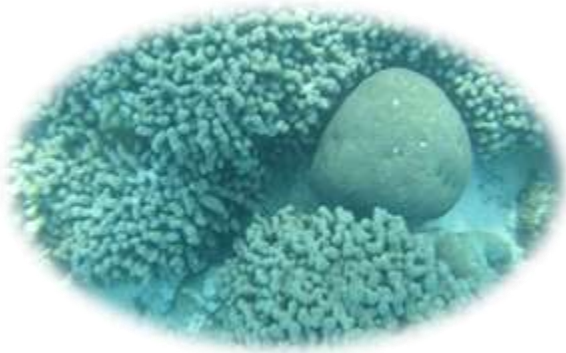
For those who cannot, there is a make-shift mosque in the Island. Keeping in view the teachings of Islam, consumption of alcoholic beverages is prohibited in all islands, except Bangaram.

**How to Reach?** To reach the island one has to spend virtually the whole day. One could fly early in the morning from Delhi, via Bangalore and reach Agatti where is the only airport in Lakshadweep. If you hire a boat from Agatti, after nearly two hours, you reach Bangaram. The boat ride from Agatti to Bengaram ordinarily is not very smooth. The sea could be very rough as the winds are sometimes harsh. Riding on the ceaseless crests of rolling waves you finally reach Bangaram.

**Stay** One could stay in one of the twin cottages provided by SPORT (Society for Preservation of Nature, Sports and Tourism), the nodal agency for promotion of tourism in Lakshadweep. **It is impressive that a remote island could offer modern facilities like solar lighting, solar operated TV, supply of portable water by water harvesting and air-conditioning, although some may consider the cottages not luxurious enough.** BSNL mobile lines were working. AIRTEL has set up a tower in the island.

**Take nothing but pictures. Leave nothing but footprints. Kill nothing but time**

**- Motto of the Baltimore Grotto**



**Facilities** Bangaram is uninhabited, but for the presence of resort staff and Government officials. The island is virtually crime free, but a small police set up is available here. Similarly a health sub centre with a nurse is available to meet the basic health needs of the people staying there. One could visit the local power station and the solar power plant in the Island. **Internet is however, not available.**

**What do you do ?** The twin cottages in the Bangaram Island Resort face east into the lagoon. You will be able to watch the sunrise out of vast sheet of grey sea, which is indeed spectacular. In the mornings, the tide is low so that one can walk along the white silver shores. During the day when the Sun is hot, you could relax under the shade of coconut trees, sipping cool water of tender coconuts. The climate of the island is tropical with temperatures between 27-32 c. You will be able to move round the beach in the hot sun because of the cool refreshing winds. In the evening you could watch

the varying hues of the sunset from near the helipad behind the huts.

There are plenty of things to do in the island like snorkeling, kayaking, pedal boating, Scuba diving, sun bathing etc. You could go for boating in a glass bottom boat to observe the corals, which is an unforgettable experience. The

lagoon houses myriad flora and fauna. **Nowhere else can you see such a massive and continuous formation of live corals.** You could identify some of them as potato, tiger, brain and clam shelled corals. Besides the corals there are sea urchins, sea cucumbers, cowry clams, and Star fish. There are also butterfly fish, eels, sting rays, angel fish, flying fish, sharks and turtles. Different types of sea weeds impart different hues to the sea water. You could also see a fresh water lake in the island, which is presently being renovated and made attractive for birds. Sand pipers are common here. Other birds like herons can also be spotted here.





Evening is the best time in the island. Myriad hues are reflected in the sea water just before sunset.



**The sea** After the sunset the sea is deep blue in colour. It is the time of high tide. The sea becomes rough, the waves start rolling up the beach, constantly covering the white sands. Soon the bright moon and the stars appear if the sky is clear. **One could at once experience all elements of nature-water, air, earth space and fire intensely in this island. One could watch in the distant horizon the time and space merging and one experiences the profound feeling of infinity and eternity together.**

The sea water in the lagoon is light

greenish blue and is luminous and the luminance is due to planktons floating in the sea water near the shores. Sea water here is so crystal clear and pristine that one could virtually see the bottom of the sea. You could spot a huge array of corals and fish in the lagoon.

**Visit to other islands** You could also visit the other three uninhabited islands in the same atoll, namely Tinnakara, Parali 1 and Parali 11, which perhaps offer more spectacular view of the corals. Your isolation will be complete in the islands as you are left to yourselves. A few people came for a few hours and leave early. The staffs present were pleasant and retreated discreetly after looking after our needs. The local people in the island are friendly and hospitable.

**The stay in the Cottages** If more people stay in the twin cottages, one could not perhaps have had this kind of privacy. Food is served in a separate hut. Vegetarian and non-vegetarian items are available. The food served is a mixture of Kerala food with some north Indian items to suit the taste of visitors from the North. Getting a sumptuous meal is a luxury on this far away island. The cost is moderate and the service impeccable. Coconut rice and fish form the major constituent of the local diet, as they are available in plenty and

Travel is glamorous in retrospect

- Paul Theroux

people in the islands are engaged in fishing and coconut cultivation. You could have a taste of rice cooked in coconut milk. They also cook fish biryani using lagoon fish. In Agatti, while returning from Bangaram, we tasted some local sweets made of jaggery, rice and coconut. One item made from tender coconut and clothed in coconut leaves is exported to Gulf.

**Sustainable development** The Lakshadweep administration claims to have taken several measures for sustainable development of the islands, including restricted entry of tourists, restriction on pucca constructions, ban on removing corals etc. People's livelihoods have been adversely affected in the last two years due to over-fishing and that the unemployment amongst the youth is very high. Due to ever increasing transport by motor boats the fragile ecosystem is getting disrupted. Unless the environmental impact of human activities is monitored closely, the boundless beauty gifted by nature to these islands will be lost forever. The islands also need to be protected from continuous sea erosion. Urgent steps are needed to protect of the silver beaches and sentinel-like coconut trees. Local plants called *Kanni* grow well in these islands and they develop into mangroves, which offer natural protection. Other similar plants could be identified which can provide much cheaper eco-friendly protection to the islands than the concrete structures.

**It There are no foreign lands. It is the traveler who is foreign**

**- R.L. Stevenson**



## WHITE DWARFS

Anup Kumar Sinha

*A star-studded sky is a breath-taking spectacle. We are struck by the sheer beauty of multitude of stars pulsating in the sky. But we seldom think deeply about the origin, evolution or death of stars. Here is a great scientist (Dr.S.Chandrasekhar) who visualized the universe at the age of 18, his mind racing across the milky-way to sense the existence of black holes and white dwarfs.*

*Who was Dr. Chandrasekhar? What is 'Chandrasekhar limit' in astro-physics? What are white dwarfs and black holes? Only when we realize how the concepts, developed by him with the aid of mathematics, could introduce dramatic changes in our fundamental understanding of the universe that we begin to appreciate the enormity of the contributions made by him towards the unravelling of the mystery of the universe. Anup sinha has compiled the details.*



**Dr. S. Chandrasekhar** was born in Lahore, Punjab, and British India on 19<sup>th</sup> October, 1910. After schooling, he studied in the Presidency College, Madras. **Dr. C.V. Raman, discoverer of 'Raman Effect' and Nobel Laureate was his uncle.** The parallels in their life are striking. Both Dr. C. V. Raman and Chandrasekhar studied in Presidency College, Madras and at the age of 18 they both wrote research papers.

While travelling to Europe by ship Dr. Raman's attention was drawn to the origin of the blue colour of the Mediterranean Sea. This led to the

I am sure the universe is full of intelligent life. It's just too intelligent to come here

Arthur C. Clarke

discovery of the 'Raman Effect'. **When Raman received his Nobel Prize in 1930, Chandra wrote a historic paper in the same year, immediately after obtaining his Bachelor's degree.** Inspired by a lecture by Arnold Somerfield in 1929, Chandra wrote his first paper 'The Crompton Scattering and the New Statistics'. He was awarded a Government of India scholarship to pursue Graduate studies in Trinity College, Cambridge. This formed the basis of another Nobel for his nephew in 1983. Most of the work on this paper was done during his voyage from Bombay to London by ship in August 1930! While DR. C.V.Raman was a great experimental Physicist, Chandra was a genius in theoretical physics, astrophysics and mathematics.



Figure 30. NASA Chandra X-Ray Observatory

Credit: NASA

While he was doing Graduate studies in Trinity College, London, Chandra was introduced to the monthly meeting of the Royal Astronomical Society. His infamous encounter with Arthur Eddington in 1935, in which the latter publicly ridiculed (allegedly motivated by racial prejudice) Chandra's most famous discovery, forced him to consider employment outside UK. However, other great scientists, including Ralph Fowler (with whom he shared a Nobel Prize later), Neils Bohr and Paul Dirac found his calculations sound. He served

on the University of Chicago Faculty from 1973 until his death in 1995 at the age of 84. **He was awarded Nobel Prize in physics in 1983 on the physical process important to the structure and evolution of stars.**

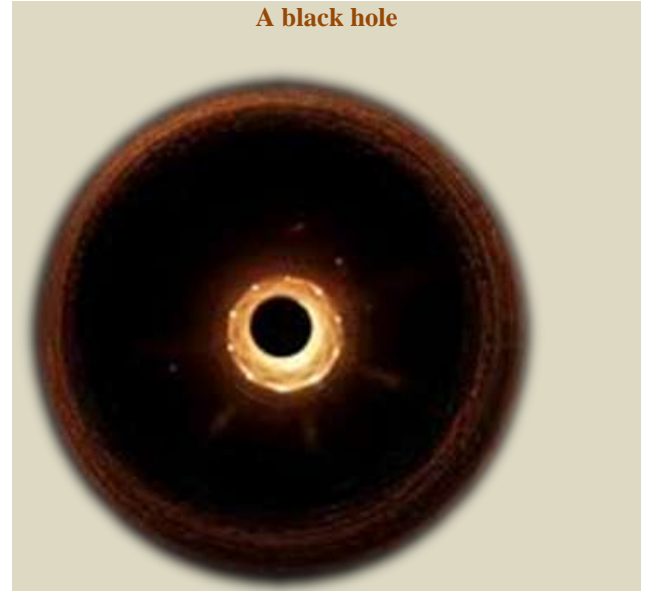
'Stars, like the Sun, explains Dr. Rao, scientist in his email dated 12-10-2000 published in the internet, maintain their equilibrium during their active period by balancing the inward gravitational attraction of their mass against their outward pressure, which is a consequence of nuclear fusion reactions taking place in their interior. In this way hydrogen content of the stars is 'burnt' to form more stable helium nuclei and release the energy as that eventually radiated as star light. What happens when the fuel of the hydrogen is exhausted, that is, all of it has been made into helium? Since there is no outward pressure, the star collapses as a result of the gravitational forces. Chandra observed that if the mass of the star is large, correspondingly the electrons in the collapsed state will move faster, and when their speed increases eventually to nearly the speed of light-----the pressure does not increase enough to keep pace with the increase of gravitational attraction. Consequently, no stable object is formed and the star proceeds towards a more compact object. A stage will be reached when the gravity of such an object is so strong that nothing--not even light escape from it. **A very massive star, after exhausting its nuclear fuel, ends up as a black hole in the universe'**

Chandra's notable work was astrophysical. He was one of the first scientists to combine the disciplines of physics and astronomy. **Early in his career he demonstrated that there is upper limit known as the 'Chandrasekhar Limit' to the mass of a white dwarf star.** White dwarf is the last stage in the evolution of a star such as the Sun when the nuclear energy source in the centre of a star is exhausted and it collapses to form the white dwarf. **Chandrasekhar limit describes the maximum mass of a white star as equivalent to the minimum mass above which a star will collapse into a neutron star or black hole.** The limit at 1.4 solar masses was calculated by Chandra in 1930 during his maiden voyage from India to England for his graduate studies. This discovery is basic to

**Give me a place to stand and  
I will move the Earth**

**Archimedes**

**A black hole**



is a region of space- time when gravity is so strong that nothing that enters the region, not even light can escape. Stellar black holes are made when the centre of a very big star collapses. When this happens it causes a supernova (supernova is an exploding star that blasts part of the star into space). **Black holes are places where ordinary gravity has become so extreme that it overwhelms all other forces in the universe.** Around a black hole there is a mathematically defined surface called event horizon that marks the point of no return. It absorbs all light that hits the horizon, reflecting nothing, just like a perfect black body in thermodynamics. The largest black holes are called 'super massive'. These have masses that are more than million suns together. Scientists have found proof that every large galaxy contains a supermassive black hole at its centre.

modern astrophysics since it shows that **stars more massive than the Sun must either explode or form a black hole.**



‘Chandra took up a new area of study every ten years, published prolifically in the subject over a decade and then published a treatise as last word on that subject--- He was a great physicist of the twentieth century, one of those to put India on the world map of physics.’ Carl Sagan who studied mathematics under him at the University of Chicago praised him thus ‘ I discovered what true mathematical elegance is from Chandrasekhar’. In 1999 NASA named the third of its four great observatories after Chandra. The Chandra X-ray Observatory was launched and deployed by space shuttle Colombia on 23<sup>rd</sup> July, 1999. The Asteroid 1958 Chandra is named after him.

‘Truth and Beauty: Aesthetics and Motivations in Science’, a collection of lectures given by Chandra, is considered to be a classic. He made indelible impressions in the fields of theoretical Physics, Astrophysics and Mathematics. The reason for the 50 year delay for the Nobel Prize was lack of understanding of his complicated work and the controversies in accepting his theory. When asked about it he is said to have replied ‘they also serve who stand and wait.’ He did not give much importance to the Nobel Prize he received. In a letter to his brother he wrote “the award while gratifying is not the one that I sought, or indeed one that I considered relevant to the scientific career’. Wrote Dr.Rao ‘ After reaching the highest goal and thinking what is going on at millions of light years away, where even light could not escape, he left us some of the questions which are interesting to everyone. After he left this world what has remained with us is ‘Chandrasekhar Limit’, like Raman Effect. These two will remain as long as Sun and Moon remain with us’.

Chandra had said “The pursuit of science has often been compared with scaling of mountains, high and not so high. But who amongst us can hope, even in imagination, to scale the Everest and reach its summit? But there is nothing mean or lowly in standing in the valley below and awaiting the sunrise over the Kanchenjunga.” He not only waited in the valley, but also climbed.

The universe is a pretty big place. If it's just us, seems like an awful waste of space

- Carl Sagan

### A white dwarf



is also called a degenerative dwarf. It is a small star composed mostly of electron degenerate matter. It is very dense. Its mass is comparable to that of the Sun and its volume to that of the earth.

White dwarfs are thought to be the final evolutionary state of all stars whose mass is not high enough to become neutron stars- over 97% of the stars in our galaxy. A white dwarf is what stars like Sun become after they have exhausted their nuclear fuel. Only the hot core remains .This core becomes a hot white dwarf, with a temperature exceeding 100,000 kelvin. The white dwarf cools down over the next billion years or so.

#### Sources: Photos

Wikipedia/whitedwarf.org  
NASA Hubble site on Internet

**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.**

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## LIFE SCIENCE FOUNDATION

### SERVICE IN TRUSTEESHIP

#### ABOUT US

The Life Science Foundation is a Not- for- Profit Public Charitable Trust registered on 30<sup>th</sup> 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 spirits.

#### 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.

