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"Great is Truth and it shall prevail"

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THE DUAL BEING

There are two beings in my single self. A Godhead watches Nature from behind At play in front with a brilliant surface elf, A time-born creature with a human mind.

Tranquil and boundless like a sea or sky, The Godhead knows himself Eternity's son. Radiant his mind and vast, his heart as free; His will is a sceptre of dominion.

The smaller self by Nature's passions driven, Thoughtful and erring learns his human task; All must be known and to that Greatness given This mind and life, the mirror and the mask.

As with the figure of a symbol dance The screened Omniscient plays at Ignorance.

SRI AUROBINDO

(Collected Poems, SABCL, Vol. 5, p. 141)

THE DIVINE BODY

(Continued from the issue of March 2006)

The supramental consciousness is not a fixed quantity but a power which passes to higher and higher levels of possibility until it reaches supreme consummations of spiritual existence fulfilling supermind as supermind fulfils the ranges of spiritual consciousness that are pushing towards it from the human or mental level. In this progression the body also may reach a more perfect form and a higher range of its expressive powers, become a more and more perfect vessel of divinity.

*

This destiny of the body has rarely in the past been envisaged or else not for the body here upon earth; such forms would rather be imagined or visioned as the privilege of celestial beings and not possible as the physical residence of a soul still bound to terrestrial nature. The Vaishnavas have spoken of a spiritualised conscious body, *cinmaya deha*; there has been the conception of a radiant or luminous body, which might be the Vedic *jyotirmaya deha*. A light has been seen by some radiating from the bodies of highly developed spiritual persons, even extending to the emission of an enveloping aura and there has been recorded an initial phenomenon of this kind in the life of so great a spiritual personality as Ramakrishna. But these things have been either conceptual only or rare and occasional and for the most part the body has not been regarded as possessed of spiritual possibility or capable of transformation. It has been spoken of as the means of effectuation of the dharma and dharma here includes all high purposes, achievements and ideals of life not excluding the spiritual change: but it is an instrument that must be dropped when its work is done and though there may be and must be spiritual realisation while yet in the body, it can only come to its full fruition after the abandonment of the physical frame. More ordinarily in the spiritual tradition the body has been regarded as an obstacle, incapable of spiritualisation or transmutation and a heavy weight holding the soul to earthly nature and preventing its ascent either to spiritual fulfillment in the Supreme or to the dissolution of its individual being in the Supreme. But while this conception of the role of the body in our destiny is suitable enough for a sadhana that sees earth only as a field of the ignorance and earth-life as a preparation for a saving withdrawal from life which is the indispensable condition for spiritual liberation, it is insufficient for a sadhana which conceives of a divine life upon earth and liberation of earth-nature itself as part of a total purpose of the embodiment of the spirit here. If a total transformation of the being is our aim, a transformation of the body must be an indispensable part of it; without that no full divine life on earth is possible.

It is the past evolution of the body and especially its animal nature and animal history which seems to stand in the way of this consummation. The body, as we have seen, is an offspring and creation of the Inconscient, itself inconscient or only half-conscious; it began as a form of unconscious Matter, developed life and from a material object became a living growth, developed mind and from the subconsciousness of the plant and the initial rudimentary mind or incomplete intelligence of the animal developed the intellectual mind and more complete intelligence of man and now serves as the physical base, container and instrumental means of our total spiritual endeavour. Its animal character and its gross limitations stand indeed as an obstacle to our spiritual perfection; but the fact that it has developed a soul and is capable of serving it as a means may indicate that it is capable of further development and may become a shrine and expression of the spirit, reveal a secret spirituality of Matter, become entirely and not only half-conscious, reach a certain oneness with the spirit. This much it must do, so far at least it must transcend its original earth-nature, if it is to be the complete instrument of the divine life and no longer an obstacle.

SRI AUROBINDO

(Essays in Philosophy & Yoga, CWSA, Vol. 13, pp. 539-41)

I have said that from a young age children should be taught to respect good health, physical strength and balance. The great importance of beauty must also be emphasised. A young child should aspire for beauty, not for the sake of pleasing others or winning their admiration, but for the love of beauty itself; for beauty is the ideal which all physical life must realise. Every human being has the possibility of establishing harmony among the different parts of his body and in the various movements of the body in action. Every human body that undergoes a rational method of culture from the very beginning of its existence can realise its own harmony and thus become fit to manifest beauty.

...But if for any reason this physical education has not been given during childhood or even in youth, it can begin at any age and be pursued throughout life. But the later one begins, the more one must be prepared to meet bad habits that have to be corrected, rigidities to be made supple, malformations to be rectified. And this preparatory work will require much patience and perseverance before one can start on a constructive programme for the harmonisation of the form and its movements. But if you keep alive within you the ideal of beauty that is to be realised, sooner or later you are sure to reach the goal you have set yourself.

The Mother

(On Education, CWM, Vol. 12, pp. 16-17)

'MAKE US THY TORCHES IN THE WORLD'

November 28, 1913

In this calm concentration which comes before day-break, more than at any other moment, my thought rises to Thee, O Lord of our being, in an ardent prayer.

Grant that this day which is about to dawn may bring to the earth and to men a little more of pure light and true peace; may Thy manifestation be more complete and Thy sweet law more widely recognised; may something higher, nobler, more true be revealed to mankind; may a vaster and deeper love spread abroad so that all painful wounds may be healed; and may this first sunbeam dawning upon the earth be the herald of joy and harmony, a symbol of the glorious splendour hidden in the essence of life.

O Divine Master, grant that today may bring to us a completer consecration to Thy Will, a more integral gift of ourselves to Thy work, a more total forgetfulness of self, a greater illumination, a purer love. Grant that in a communion growing ever deeper, more constant and entire, we may be united always more and more closely to Thee and become Thy servitors worthy of Thee. Remove from us all egoism, root out all petty vanity, greed and obscurity. May we be all ablaze with Thy divine Love; make us Thy torches in the world.

A silent hymn of praise rises from my heart like the white smoke of incense of the perfumes of the East.

And in the serenity of a perfect surrender, I bow to Thee in the light of the rising day.

The Mother

(Prayers and Meditations, CWM, Vol. 1, p. 37)

^{*} The passage between the asterisks was translated by Sri Aurobindo- Ed.

TO KNOW HOW TO SUFFER

IF at any time a deep sorrow, a searing doubt or an intense pain overwhelms you and drives you to despair, there is an infallible way to regain calm and peace.

In the depths of our being there shines a light whose brilliance is equalled only by its purity; a light, a living and conscious portion of a universal godhead who animates and nourishes and illumines Matter, a powerful and unfailing guide for those who are willing to heed his law, a helper full of solace and loving forbearance towards all who aspire to see and hear and obey him. No sincere and lasting aspiration towards him can be in vain; no strong and respectful trust can be disappointed, no expectation ever deceived.

My heart has suffered and lamented, almost breaking beneath a sorrow too heavy, almost sinking beneath a pain too strong.... But I have called to thee, O divine comforter, I have prayed ardently to thee, and the splendour of thy dazzling light has appeared to me and revived me.

As the rays of thy glory penetrated and illumined all my being, I clearly perceived the path to follow, the use that can be made of suffering; I understood that the sorrow that held me in its grip was but a pale reflection of the sorrow of the earth, of this abysm of suffering and anguish.

Only those who have suffered can understand the suffering of others; understand it, commune with it and relieve it. And I understood, O divine comforter, sublime Holocaust, that in order to sustain us in all our troubles, to soothe all our pangs, thou must have known and felt all the sufferings of earth and man, all without exception.

How is it that among those who claim to be thy worshippers, some regard thee as a cruel torturer, as an inexorable judge witnessing the torments that are tolerated by thee or even created by thy own will?

No, I now perceive that these sufferings come from the very imperfection of Matter which, in its disorder and crudeness, is unfit to manifest thee; and thou art the very first to suffer from it, to bewail it, thou art the first to toil and strive in thy ardent desire to change disorder into order, suffering into happiness, discord into harmony.

Suffering is not something inevitable or even desirable, but when it comes to us, how helpful it can be!

Each time we feel that our heart is breaking, a deeper door opens within us, revealing new horizons, ever richer in hidden treasures, whose golden influx brings once more a new and intenser life to the organism on the brink of destruction.

And when, by these successive descents, we reach the veil that reveals thee as it is lifted, O Lord, who can describe the intensity of Life that penetrates the whole being, the radiance of the Light that floods it, the sublimity of the Love that transforms it for ever!

THE MOTHER

(Words of Long Ago, CWM, Vol. 2, pp. 20-21)

1910

SONG-SECRET

(An unpublished poem by Amal Kiran and Sri Aurobindo's comment)

Sri Aurobindo-

I wrote this poem today morning but I am doubtful if it is successfully suggestive. May I have your impression? And what plane has tried to express itself?

SONG-SECRET

No man has truly heard The voice Of a single* soaring bird Throated with silver joys,

If he has seen not through Wide wings A spirit-door unmew Those earthly carollings—

The spirit-door of night A-swoon, Bearing on outer sight The padlock of the moon.

Amal 3-8-35

Sri Aurobindo's comment: "I am not sure. It is good, but somehow does not hang together very closely. And that "unmew" has obsessed me with cat-voices—the spirit-door making the earthly carollings less like unearthly mewings. It is my fault, I admit. But if you could unmew the line and save me from being haunted forever!"

* To Amal's suggestion regarding line 3: What about "any" instead of "a single"?
Sri Aurobindo answered: No.
And to Amal's second suggestion regarding the same line: Or " of a single bird"
Sri Aurobindo again wrote No.



PAINTING AS SADHANA

Krishnalal Bhatt (1905-1990)

(Continued from the issue of March 2006)

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[Krishnalal's correspondence with the Mother and Sri Aurobindo]

1934

16-1-34: Yesterday night when I went to bed I thought it better to aspire for peace to calm down the nervousness before sleep; while doing so the same experience of the vital being separating was revived. This time there was no pressure and fast beating of the heart as in the afternoon. But the suggestions from the adverse forces were more and powerful. The suggestions of madness, illness and especially of fever attacked me often. I rejected them and had a good sleep.

Today in the morning during meditation time I had the pressure on the left side of the chest. Also it became very hot.

I feel a sensation of fever trying to approach my body. Why and what are all these effects?

How are they to be faced?

Sri Aurobindo: Face them with a complete rejection—and calm and quietness and faith in the protection.

16/1/34: Mother,

I send a vision of a ship which I saw during my experience yesterday afternoon. I am not able to understand the round shapes in the foreground. May I hope for the symbolism of the vision?

Sri Aurobindo: It is the ship of the sadhana forcing its way through the difficulties (mountainous waves indicated by the round shapes).

16/1/34: Mother,

Yesterday in the evening I saw a vision as drawn above. Four golden figures standing on four sides of a circle of golden light. Kindly explain me its significance. Sri Aurobindo: It is probably the wheel of the universal manifestation, but in the Truth (golden light)—four is the sign of completeness.

[This letter is reproduced in facsimile on the opposite page.]



16/1/34 Mother, yesterday in the evening I saw a vision as drauen above. Four golden figures stands -ing on four sides of a circle of golden light. Kindly eschlain me its significance It is probably the wheel Keishnalal's of the innormal memory lot on he of the man capleties

18/1/34: Mother,

Today during meditation I felt something trying to descend on the head but there it was, as if obstructed and could not come down. Since then there is headache and a feeling that there is a horizontal layer in the head barring the way of the descending movement.

Sri Aurobindo: There is often a bar like that—very usually composed of habitual thoughts and ideas.

K: Today I have received from a friend of mine, who is an editor of a magazine, two stories to be illustrated. What should I do?

Sri Aurobindo: You can do it.

18/1/34: Mother,

This vision (of a mountain) I saw yesterday in meditation during pranam time. Sri Aurobindo: It is a beautiful vision and has the same meaning of the ascending aspiration to the Light.

K: I require six picture-frames with cloth-tapes pasted on four borders—not wooden frames. Can I ask Biren for these with your kind permission? Sri Aurobindo: Yes.

20/1/34: Mother,

Yester-night while I was asleep I felt some strange thing thrown towards me. It fell by my side. At once I got out of the sleep and I had the impression that to create fear in me it happened. What can it be due to?

Sri Aurobindo: It may be. You might ask Rishabchand whether you can move upstairs. K: Since three days automatically some thoughts are going on in the mind. So I am not able to concentrate well on one thing. I cannot do meditation easily. I try to reject these thoughts and meditate but then headache begins. What is this and what should I do in this matter? Should I not try to meditate?

Sri Aurobindo: Do not force yourself.

Mother would like to see your illustrations when you do them.

Mother thought you might like to keep the picture of your vision, so she is sending it back to you.

20/1/34: Mother,

I saw one Japanese picture in vision which I have tried to reproduce here. I am not able to bring out the same minute details but the colouring and the general compositions are more faithful to the vision-picture.

Kindly let me know, what does it indicate?

Sri Aurobindo: It is a vision of some scene in the vital world which translated in your consciousness as a Japanese picture. Such scenes are renderings of some vital world

experience—the water symbolises the movement of forces and the swiftness of the movement up the stream is a sign of the advance in the vital progress. These scenes are sometimes dark, sometimes luminous, or the water itself luminous or mixing with the sky.

23-1-34: Mother,

Today I have occupied the new room. [*The South-East facing room at No.11, Rue St. Louis on the first floor. This is where he stayed till the end*]. May I request you for a painting done by you to keep it with me?

Sri Aurobindo: But Mother has no time to do any painting as she is occupied all day and most of the night!

24-1-34:

Mother, after a long time I am doing human figures with your permission. Am I able to bring out the idea without any lower influence? Kindly let me know your suggestions and opinion.

Sri Aurobindo: The idea is brought out sufficiently—there is no lower influence, but the subject itself has not much refinement and does not give opportunity for a higher expression. There is some deficiency in the knowledge of the human body—more study from Nature would be needed.

25-1-34: Mother,

Are there any more suggestions for study except that of human body? For the knowledge of human figures should I recommence sketching from nature? Mother: It seems to me that a few sketches from nature would be useful especially from the point of view of the proportion of legs and arms and the harmony of form. K: A handle for the main door of my room is necessary. Mother: Ask it from Chandulal.

29-1-34: Mother,

I send a rough drawing for the fresco-work. The drawing is to be symmetrical so one side is done which will be traced afterwards.

I will be obliged to have your suggestions about the drawing before I commence it on the plaster.

Sri Aurobindo: The Mother finds the drawing quite satisfactory—there is nothing to suggest.

(?.1.34?): Mother,

As I find the electric light very dim for writing, reading or drawing purposes

will you favour me and grant a table-lamp or convert the present one in such a way that it can be removed?

Mother: We have no table lamp in stock but as soon as they will be ready I shall send you one.

29/1/34: According to your order the wire given for the table-lamp is 12 feet long, but as it is a little short to reach the corner where I have kept my seat for drawing will you kindly sanction 5 feet more?

Sri Aurobindo: The 12 feet are the usual allowance and they were the end of a roll if you want the 5 feet more, you will have to wait till a new stock comes.

[Undated]: As the materials for painting are increasing it seems I will need a cupboard. May I ask from Mother for one of a fairly good size? Sri Aurobindo: Ask Amrita.

[Undated]: Mother,

I send some cuttings of pictures. Sometimes I see such pictures pasted on the envelopes, so thinking that some from these may come in use I send them to you. Sri Aurobindo: They are very beautiful and will be very useful.

1-2-34: Mother,

I have completed the fresco the rough sketch of which I sent you two days back. It is on a piece of everite which will be fixed on the wall of Tresor House. Can you arrange the time and place to see it and oblige?

I want to know and try the picture-mounting style which is done in Japan for picture-rolls. If you can give me any instructions I will be very glad to receive them. And if you have any such rolls of Japanese pictures I would like to see them.

Sri Aurobindo: Mother has plenty. She will look and one day when she gets time, she will call you, and show the rolls and see the everite fresco.

K: The used safety-razor blades are very useful for cutting the borders of the pictures and such other fine works. But without any handle it is inconvenient to use them. As I learnt from Pavitra that the handle can be made can I ask him to make one? Sri Aurobindo: Yes.

5-2-34: Mother,

Was there any psychological cause on the part of my being in the incident of the fresco yesterday? When the fresco gave way I was a little nervous only because the incident occurred in an awkward position; except that I had no depressing or any other feeling.

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Sri Aurobindo: No psychological reason. You put thick lime without mortar, says Chandulal—that can't stick even on a wall—and as it was thick, it dropped off at once. K: I had in mind the idea of doing a fresco in the interior—about which you suggested to me yesterday. It will be done on the wall in the style of egg-tempera, which I hope to begin after February.

10/2/34: Mother,

Today at the time of Pranam I felt that a kind of shock passed through Mother's body, when my head was under her hand and in her lap. When I raised my head I received a sweet smile from Mother.

May I know whether it was connected with any movement of my being? Sri Aurobindo: It is always a force like lightning that passes when the one who is making pranam is very receptive.

K: Before some time I had a desire to draw Mirabai's picture. Very recently I had the consciousness of Mirabai in which I felt the love, devotion and the union with Krishna trying to present before me. Since then I keep up the aspiration so that that consciousness may take a definite form which I can put in the picture. I feel that some form will present itself. I try to keep the mind quiet; though I have headache sometime while concentrating for it.

23/2/34: Mother,

I have inquired about the paper of sufficiently long size for the mounting of the picture; but it is not available here so should it be got from Madras? Sri Aurobindo: Yes.

1/March/34: Mother,

Before I mount the big picture I want to try a small picture-mounting in the Japanese style; but before I begin it I would like to see one roll of Japanese picture in details, so if you have no objection may I ask for any one roll from your stock only for one day?

Sri Aurobindo: Yes, Mother is giving you one to see.

3/3/34: Mother,

After the occasion of the 21st February, I used to see flowers and plants of various colours when I closed my eyes. This painting is one from the memory after those impressions.

What is the meaning of these plants?

Sri Aurobindo: These things are seen in the vital or physical vital and mean some movement of strength and energy, manifestation or blossoming in the vital.

8/3/34: Mother,

I require two round sticks for a small picture mounted in Japanese style.

The size is as follows: length: 14 inches, diameter 1 inch. What can I do for that?

Mother: Ask them from Chandulal. I wanted to know that your picture was mounted in order to call you. Will it be ready for next Sunday?

12/March/34: Mother,

I have brought some samples of silk for mounting which I send herewith. I could not find greenish grey. Here there are four green samples and other blues with violet tints. Mother may select from these for mounting.

I have brought two samples of gold borders if the main portion in the centre can be used for the top and the bottom. In these more width is not available here.

If gold border or cloth is not available can I use gold leaf?

Mother: The cloth which is on this page will surely look very nice—but the gold of the border is far too bright. Bright gold will not look nice at all. The Japanese always use very subdued gold as if tarnished by time. The gold leaf would have, I think, the same defect of being too bright.

13/3/34: Mother,

A movement is continued in me since the 21st Feb. I was full of joy at that time because Mother's birthday was coming. Mother's idea made my consciousness rise high up.

Though lapses come at times in this movement but it is going on. There are different experiences which I write.

Sometimes ideas of sex or jealousy try to rise up but all of a sudden Mother's presence seems to descend and those ideas flow away.

Sometimes I begin to concentrate over the painting and Mother's presence is felt. The Mother's presence is felt so much that I feel myself and surrounding full with the presence.

At times I feel wave-like movements coming over and over especially in face and head; or some movement coming down from above and as if broadening the head and the face.

The whole movement is towards Mother. The ideas of the old relations come up only to be rejected and turn me more towards the Mother.

Sometimes in this movement I have a sensation just under the throat; also I feel not to eat during the movement.

What movement can this be? Has it any direct relation with art creations? Sri Aurobindo: Yes. It is the result of the pressure put by the Mother to see and do things in the true light. What you feel coming down is the true consciousness with the presence and action of the Mother.

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14/3/34: Mother,

To-morrow I want to do mounting between 3 and 5 p.m. in Champaklal's room. He has consented to using his room for the purpose. Can I do it there? Sri Aurobindo: Yes.

K: I will require 2 brass nails of 1/2 inch length.

Sri Aurobindo: Yes. Get from B.D.

(15.3.34?) Mother,

I did mounting of the picture with the help of Purani and Champaklal. Still, pasting of the sticks remains which I will finish to-morrow evening.

The mounting is not quite satisfactory. The cloth (silk) was too thin to be pasted evenly and so some air-bubbles have remained; also the brown-paper on the back and its joint are the cause of its uneven surface.

(15.3.34?): Mother,

Today Amrita told me that as the canvas is not to be bought for the easy chairs in which one is made for me—I am to be given from the store. The one which he showed me today was rather weak and a crack was there which was screwed down. He said that there are others in the store which are recently returned, can I select one from there?

Sri Aurobindo: Mother has told Amrita to put canvas on the new easy chair.

[Undated]: Mother,

Today when I had gone for a walk with others at about 8 p.m., I saw a black being riding on an ox or something like that. First I could not see it clearly so I tried to mark it again and I saw in addition a golden halo behind its head.

Previous to this we had talks on the disposal of dead bodies in which I did not take much part because I was in meditative mood.

Kindly explain me about that movement.

Sri Aurobindo: It may be a representation of some power or messenger of Yama—suggested by the conversation about the dead bodies.

K: Mother, will you grant me a permission for a new book on art ("The Art of K. Muzumdar") to be issued from the library?

Sri Aurobindo: Yes. But take great care and do not lend them to anyone.

16/3/34: Mother,

Yesterday I saw a design as shown on the side. The colours in it were in a jumble so I do not remember them. What does it signify?

Sri Aurobindo: The perfect creation of a new world. [Facsimile of this letter is reproduced on the opposite page.]

21/3/34: Mother,

Sometimes, past relations and attachments rise up in me during the waking hours. Sometimes I feel that they are something from outside having no relation with my real self; or I go above in the consciousness and detach myself from them. What should be the right attitude in this movement?

Sri Aurobindo: To detach oneself, to feel that they have nothing to do with one's real self is the first necessary step. Afterwards they must be rejected altogether from the waking hours.

K: In the psychic movement when I felt the Mother's presence I had the experience that I lost the ordinary individuality and felt as the instrument of the Divine, receiving from the Divine and again manifesting for the Divine, completing the circle. Sri Aurobindo: It is very good and quite the right experience.

22/3/34: Mother,

At present I find it not difficult to deal with the vital movement in the waking hours. But I do not understand how to deal when it rises from the subconscious in the dreams. Especially since two days I have the dreams of sex impulse in which I remain quite unaware of their working. Formerly I used to be a little cautious.

Will you kindly guide me in this?

Sri Aurobindo: You can try the use of the will before sleeping. After a time it sometimes brings a special consciousness and inhibiting reaction against the subconscient movement in sleep.

K: When I am in meditation many times the descending movement begins. It continues smoothly sometimes but generally it is disturbed in its flow.

What can be the causes for the disturbance in its flow? And how it can remain undisturbed?

Sri Aurobindo: The cause is generally an activity of the mind or else a resistance somewhere in the physical. The way is to remain very quiet and try to be immobile within.

(To be continued)

S. V. BHATT

True art means the expression of beauty in the material world. In a world wholly converted, that is to say, expressing integrally the divine reality, art must serve as the revealer and teacher of this divine beauty in life.

The Mother

(On Education, CWM, Vol. 12, p. 233)

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MATHEMATICS IN ANCIENT INDIA: AN OVERVIEW

[A series of articles on Mathematics in Ancient India were published in *Resonance*, a journal of science education. The first article of the series (April 2002), which featured only a brief overview of some of the basic results of ancient Indian mathematics, is reproduced below with minor modifications (mostly through footnotes).

Several quotations from eminent scholars had been displayed in the margins of the original *Resonance* article. Some of them have now been inserted in the main text, some introduced as footnotes.]

1. Vedic Mathematics: The Śulba Sūtras

But the Vedic Hindu, in his great quest of the *Parā-vidyā* ("Supreme knowledge"), *Satyasya Satyam* ("Truth of truths", "Absolute Truth"), made progress in the *Aparā-vidyā* ("inferior knowledge", "relative truths"), including the various arts and sciences, to a considerable extent, and with a completeness which is unparalleled in antiquity. [B. Datta¹ in Preface of ([2]).]

Mathematics, in its early stages, developed mainly along two broad overlapping traditions: (i) the geometric and (ii) the arithmetical and algebraic. Among the pre-Greek ancient civilisations, it is in India that we see a strong emphasis on both these great streams of mathematics. Other ancient civilisations like the Egyptian and the Babylonian had progressed essentially along the computational tradition. A. Seidenberg, an eminent algebraist and historian of mathematics, traced the origin of sophisticated mathematics to the originators of the Rg-Vedic rituals ([10, 11]).²

The oldest known mathematics texts in existence are the Śulba Sūtras of

1. The scholar-saint Bibhutibhusan Datta (later Swami Vidyaranya) was a doyen among historians of Indian mathematics. *Champaklal's Treasures* (pp. 172–3) contains observations of Sri Aurobindo on B. Datta.

"How great is the science which revealed itself in the Sulba, and how meagre is my intellect! I have aspired to cross the unconquerable ocean in a mere raft."

2. The following statements from Seidenberg's paper ([10]) were displayed in the Resonance article:

"...nor did he [Thibaut] formulate the obvious conclusion, namely, that the Greeks were not the inventors of plane geometry, rather it was the Indians." (p. 304)

"Anyway, the damage had been done and the Śulvasūtras have never taken the position in the history of mathematics that they deserve." (p. 306)

"A common source for the Pythagorean and Vedic mathematics is to be sought either in the Vedic mathematics or in an older mathematics very much like it.... Thus what are regarded as the two main sources of Western mathematics, namely Pythagorean mathematics and Old-Babylonian mathematics, both flow from a still older source. What was this older, common source like? I think its mathematics was very much like what we see in the Śulvasūtras." (p. 329)

An article on the origin of geometry and mathematics, in the light of Seidenberg's analyses, is likely to appear in a future issue of *Mother India*.

In the Preface of "The Science of the Śulba" ([2]), B. Datta exclaimed in a Sanskrit verse alluding to Kālidāsa:

Baudhāyana, Āpastamba and Kātyāyana which form part of the literature of the $s\bar{u}tra$ period of the later Vedic age. The *Śulba Sūtras* had been estimated to have been composed around 800 BC (some recent researchers are suggesting earlier dates). But the mathematical knowledge recorded in these $s\bar{u}tras$ (aphorisms) is much more ancient; for the *Śulba* authors emphasise that they were merely stating facts already known to the composers of the *Brāhmaņas* and *Samhitas* of the early Vedic age.

The *Śulba Sūtra*s give a compilation of results in mathematics that had been used for designing and constructions of various elegant Vedic fire-altars right from the dawn of civilisation. An altar had rich symbolic significance and had to be constructed with accuracy. The designs of several of these brick-altars are quite involved—for instance, there are constructions depicting a falcon in flight with curved wings, a chariot-wheel complete with spokes or a tortoise with extended head and legs! Constructions of the fire-altars are described in an enormously developed form in the *Śatapatha Brāhmaņa* (c. 2000 BC; vide [2]); some of them are mentioned in the earlier *Taittirīya Samhita* (c. 3000 BC; vide [2]); but the sacrificial fire-altars are referred —without explicit construction—in the even earlier Rg-Vedic *Samhita*s, the oldest strata of the extant Vedic literature. The descriptions of the fire-altars from the *Taittirīya Samhita* onwards are exactly the same as those found in the later *Śulba Sūtra*s.

The *Śulba* mathematics involves a deep understanding of the geometric and algebraic aspects of the properties of triangles, squares, rectangles, circles, parallelograms, trapezia and similar figures. Plane geometry stands on two important pillars having applications throughout history: (i) the result popularly known as the "Pythagoras theorem" and (ii) the properties of similar figures. In the Sulba Sūtras, we see an explicit statement of the Pythagoras theorem³ and its applications in various geometric constructions such as construction of a square equal (in area) to the sum, or difference, of two given squares, or to a rectangle, or to the sum of *n* squares. These constructions implicitly involve application of algebraic identitites such as $(a\pm b)^2 = a^2 + b^2 \pm 2ab$, $a^2 - b^2 = (a+b)(a-b)$, $ab = ((a+b)/2)^2 - ((a-b)/2)^2$ and $na^2 = a^2 + b^2 \pm 2ab$, $a^2 - b^2 = (a+b)(a-b)$, $ab = ((a+b)/2)^2 - ((a-b)/2)^2$ $((n+1)/2)^2 a^2 - ((n-1)/2)^2 a^2$. They reflect a blending of geometric and subtle algebraic thinking which we associate with Euclid. In fact, the Sulba construction of a square equal in area to a given rectangle is exactly the same as given by Euclid several centuries later! There are geometric solutions to what are algebraic and numbertheoretic problems. These insights into geometry and geometric algebra show that, during the Vedic age of remote antiquity, Indians had attained mastery over crucial aspects of Euclidean geometry several centuries before Pythagoras (580-495 BC) and Euclid (365-275 BC).

Pythagoras theorem was known in other ancient civilisations like the Babylonian, but the emphasis there was on the numerical and not so much on the proper geometric

3. The result is stated in the Sulba Sutras in the form: "The diagonal of a rectangle produces both [areas] which its length and breadth produce separately." The original verses are given in ([2], p. 104).

aspect while in the *Śulba Sūtras* one sees depth in both aspects—especially the geometric. This is a subtle point analysed in detail by Seidenberg.⁴ From certain diagrams described in the *Śulba Sūtras*, several historians and mathematicians like Burk, Hankel, Schopenhauer, Seidenberg and van der Waerden have concluded that the *Śulba* authors possessed proofs of geometrical results⁵ including the Pythagoras theorem—some of the details are analysed in the pioneering work ([2]) of Datta. One of the proofs of the Pythagoras theorem, easily deducible from the *Śulba* verses, is later described more explicitly by Bhāskara II (1150 AD).

Apart from the knowledge, skill and ingenuity in geometry and geometric algebra, the Vedic civilisation was strong in the computational aspects of mathematics as well—they handled the arithmetic of fractions as well as surds with ease, found good rational approximations to irrational numbers like the square root of 2, and, of course, used several significant results on mensuration.

An amazing feature of all ancient Indian mathematical literature, beginning with the *Śulba Sūtras*, is that they are composed entirely in verses—an incredible feat! This tradition of composing terse *sūtras*, which could be easily memorised, ensured that, in spite of the paucity and perishability of writing materials, some of the core knowledge got orally transmitted to successive generations.

2. Post-Vedic Mathematics

During the period 600 BC–300 AD, the Greeks made profound contributions to mathematics—they pioneered the axiomatic approach that is characteristic of modern mathematics, created the magnificent edifice of Euclidean geometry, founded trigonometry, made impressive beginnings in number theory, and brought out the intrinsic beauty, elegance and grandeur of pure mathematics. Based on the solid foundation provided by Euclid, Greek geometry soared further into the higher geometry of conic sections developed by Archimedes and Apollonius. Archimedes introduced integration and made several other major contributions in mathematics and physics. But after this brilliant phase of the Greeks, creative mathematics virtually came to a halt in the West till the modern revival.

On the other hand, the Indian contribution, which began from the earliest times, continued vigorously right up to the 16th century AD, especially in arithmetic, algebra and trigonometry. In fact, for several centuries after the decline of the Greeks, it was only in India, and to some extent China, that one could find an abundance of creative and original mathematical activity. Indian mathematics was highly esteemed by

5. Referring to a verse in the $\bar{A}pastamba \ Sulba \ S\bar{u}tra$ on an isoceles trapezoid, Seidenberg writes ([10], p. 332): "The striking thing here is that we have a proof. One will look in vain for such things in Old-Babylonia. The Old-Babylonians, or their predecessors, must have had proofs of their formulae, but one does not find them in Old-Babylonia."

^{4.} Writes Seidenberg ([11], p. 120): "...the basic point is that the dominant aspect of Old Babylonian mathematics is its computational character... The Śulvasūtras know both aspects [geometric and computational] and so does the Śatapatha Brāhmaņa."

contemporary scholars. A manuscript of 976 AD by Vigila, a monk in a Spanish monastery, records ([6], p. 362; [7], p. 313):

The Indians have an extremely subtle and penetrating intellect, and when it comes to arithmetic, geometry and other such advanced disciplines, other ideas must make way for theirs. The best proof of this is the nine symbols with which they represent each number no matter how large.

That the fame of Indian mathematics had reached the banks of the Euphrates by early 7th century is shown by a passing reference in a passage in the work of the learned Syrian astronomer-monk Severus Sebokht (662 AD):

I shall not now speak of the knowledge of the Hindus, ...of their subtle discoveries in the science of astronomy—discoveries even more ingenious than those of the Greeks and Babylonians—of their rational system of mathematics, or of their method of calculation which no words can praise strongly enough—I mean the system using nine symbols.⁶

2.1. The Decimal Notation and Arithmetic

India gave to the world a priceless gift—the decimal system. This profound anonymous Indian innovation is unsurpassed for sheer brilliance of abstract thought and utility as a practical invention. The decimal notation derives its power mainly from two key strokes of genius: the concept of place-value and the notion of zero as a digit. G. B. Halsted highlighted the power of the place-value of zero with a beautiful imagery ([5], p. 20):

The importance of the creation of the zero mark can never be exaggerated. This giving to airy nothing, not merely a local habitation and a name, a picture, a symbol, but helpful power, is the characteristic of the Hindu race whence it sprang. It is like coining the Nirvana into dynamos. No single mathematical creation has been more potent for the general on-go of intelligence and power.

The decimal system has a deceptive simplicity as a result of which children all over the world learn it even at a tender age.⁷ It has an economy in the number of symbols used as well as the space occupied by a written number, an ability to effortlessly express arbitrarily large numbers and, above all, computational facility. Thus the

6. Quoted by A. L. Basham in "The Wonder That Was India" (p. vi); also quoted in [6], p. 366; [7], pp. 311-2.

7. In the perceptive words of the great French mathematician Laplace (1814): "The ingenious method of expressing every possible number using a set of ten symbols (each symbol having a place value and an absolute value) emerged in India. The idea seems so simple nowadays that its significance and profound importance is no longer appreciated. Its simplicity lies in the way it facilitated calculations and placed arithmetic foremost amongst useful inventions. The importance of this invention is more readily appreciated when one considers that it was beyond the two greatest men of antiquity: Archimedes and Apollonius." ([6], p. 361).

twelve-digit Roman number (DCCCLXXXVIII) is simply 888 in the decimal system!

Most of the standard results in basic arithmetic are of Indian origin. This includes neat, systematic and straightforward techniques of the fundamental arithmetic operations: addition, subtraction, multiplication, division, taking squares and cubes, and extracting square and cube roots; the rules of operations with fractions and surds; various rules on ratio and proportion like the rule of three; and several commercial and related problems like income and expenditure, profit and loss, simple and compound interest, discount, partnership, computations of the average impuritites of gold, speeds and distances, and the mixture and cistern problems similar to those found in modern texts.8 The Indian methods of performing long multiplications and divisions were introduced in Europe as late as the 14th century AD. We have become so used to the rules of operations with fractions that we tend to overlook the fact that they contain ideas which were unfamiliar to the Egyptians, who were generally proficient in arithmetic, and the Greeks, who had some of the most brilliant minds in the history of mathematics. The rule of three, brought to Europe via the Arabs, was very highly regarded by merchants during and after the Renaissance. It came to be known as the Golden Rule for its great popularity and utility in commercial computations—much space used to be devoted to this rule by the early European writers on arithmetic.

The excellence and skill attained by the Indians in the foundations of arithmetic was primarily due to the advantage of the early discovery of the decimal notation the key to all principal ideas in modern arithmetic. For instance, the modern methods for extracting square and cube roots, described by Āryabhaṭa in the 5th century AD, cleverly use the ideas of place-value and zero and the algebraic expansions of $(a + b)^2$ and $(a + b)^3$. These methods were introduced in Europe only in the 16th century AD. Apart from the exact methods, Indians also invented several ingenious methods for determination of approximate square roots of non-square numbers.

Due to the gaps in our knowledge about the early phase of post-Vedic Indian mathematics, the precise details regarding the origin of decimal notation is not known. The concept of zero existed by the time of Pingala (3^{rd} century BC or earlier). The idea of place-value had been implicit in ancient Sanskrit terminology⁹—as a result, Indians could effortlessly handle large numbers right from the Vedic Age. There is terminology for all multiples of ten up to 10^{18} in early Vedic literature, the *Rāmāyaṇa* has terms all the way up to 10^{55} , and the Jaina-Buddhist texts show frequent use of large numbers (up to 10^{140} !) for their measurements of space and time. Expressions of such large numbers are not found in contemporary works of other nations. Even the brilliant Greeks had no terminology for denominations above the myriad (10^4) while the Roman terminology stopped with the mille (10^3). The structure of the

^{8.} It may be mentioned here that chess, the most intellectual of all games, originated in India.

^{9.} This point will be elaborated, with quotations from original Vedic verses, in a future issue of *Mother India*.

Sanskrit numeral system and the Indian love for large numbers must have triggered the creation of the decimal system.

We mention here that one of the most brilliant landmarks in ancient Indian mathematics was an algorithm for finding the positive integers satisfying $x^2-Dy^2 = 1$ (*D* a fixed natural number)—an important equation in modern number theory.¹⁰ Even the smallest positive integral solution of such equations could be very large; in fact, for D = 61, it is (1766319049, 226153980).¹¹ The early Indian solution to this fairly deep problem could be partly attributed to the Indians' traditional fascination for large numbers and ability to play with them.

Due to the absence of good notations, the Greeks were not strong in the computational aspects of mathematics—one of the factors responsible for the eventual decline of Greek mathematics.¹² Archimedes (287–212 BC) did realise the importance of good notation, and made notable progress to evolve one, but failed to anticipate the Indian decimal system.

The decimal system was transmitted to Europe through the Arabs. The Sanskrit word "*sūnya*" was translated into Arabic as "*sifr*" which was introduced into Germany in the 13th century as "*cifra*" from which we have the word "*cipher*". The word "*zero*" probably comes from the Latinised form "*zephirum*" of the Arabic *sifr*. Leonardo Fibonacci of Pisa (1180-1240), the first major European mathematician of the second millennium, played a major role in the spread of the Indian numeral system in Europe. The Indian notation and arithmetic eventually got standardised in Europe during the 16th–17th century.¹³

The decimal system stimulated and accelerated trade and commerce as well as astronomy and mathematics. It is no coincidence that the mathematical and scientific renaissance began in Europe only after the Indian notation was adopted. Indeed the decimal notation is the very pillar of all modern civilisation.

India has given to antiquity the earliest scientific physicians, and, according to Sir William Hunter, she has even contributed to modern medical science by the discovery of various chemicals and by teaching you how to reform misshapen ears and noses. Even more it has done in mathematics, for algebra, geometry, astronomy, and the triumph of modern science—mixed mathematics—were all invented in India, just so much as the ten numerals, the very cornerstone of all

10. Brahmagupta gave a remarkable partial solution to the problem in 628 AD; Jayadeva gave a complete solution within 11th century. In 1657, Fermat aroused interest in the problem among European mathematicians. André Weil, one of the giants of 20th century mathematics, remarked: "What would have been Fermat's astonishment if some missionary, just back from India, had told him that his problem had been successfully tackled there by native mathematicians almost six centuries earlier!" (*Number Theory: An approach through history*, pp. 81–82.)

11. The case D = 61 was specially highlighted by Bhāskara II (1150) and later by Fermat (1657) when discussing the general problem.

12. The February 2002 issue of Srinvantu contains a brief discussion on Greek mathematics and its decline.

13. The August 2002 issue of *Srinvantu* contains some details regarding decimal system and arithmetic in ancient India. An expanded version of the article is being planned for *Mother India*.

present civilisation, were discovered in India, and are, in reality, Sanskrit words. [Swami Vivekananda (Collected Works Vol II, pp. 511-12)]

2.2. Algebra

While sophisticated geometry emerged during the origin of the Vedic rituals, its axiomatisation and further development was done by the Greeks. The height reached by the Greeks in geometry by the time of Apollonius (260-170 BC) was not matched by any subsequent ancient or medieval civilisation. But progress in geometry proper soon reached a point of stagnation. Between the times of Pappus (300 AD)—the last big name in Greek geometry—and modern Europe, Brahmagupta's brilliant theorems (628 AD) on cyclic quadrilaterals constitute the solitary gems in the history of geometry. Further progress needed new techniques, in fact a completely new approach in mathematics. This was provided by the emergence and development of a new discipline—algebra. It is only after the establishment of an algebra culture in European mathematics during the 16th century AD that a resurgence began in geometry through its algebraisation by Descartes and Fermat in early 17th century. In fact, the assimilation and refinement of algebra had also set the stage for the remarkable strides in number theory and calculus in Europe from the 17th century.

Algebra was only implicit in the mathematics of several ancient civilisations till it came out in the open with the introduction of literal or symbolic algebra in India.¹⁴ By the time of Āryabhaṭa (499 AD) and Brahmagupta (628 AD), symbolic algebra had evolved in India into a distinct branch of mathematics and became one of its central pillars. After evolution through several stages, algebra has now come to play a key role in modern mathematics both as an independent area in its own right as well as an indispensable tool in other fields. In fact, the 20th century witnessed a vigorous phase of "algebraisation of mathematics". Algebra provides elegance, simplicity, precision, clarity and technical power in the hands of the mathematicians. It is remarkable how early the Indians had realised the signifiance of algebra and how strongly the leading Indian mathematicians like Brahmagupta (628 AD) and Bhāskara II (1150 AD) asserted and established the importance of their newly-founded discipline as we shall see in subsequent articles.

Indians began a systematic use of symbols to denote unknown quantities and arithmetic operations. The four arithmetic operations were denoted by "yu", "ksa", ¹⁵

14. In the The Preface of [4] Vol. II, Datta-Singh explains: "The use of symbols—letters of the alphabet to denote unknowns—and equations are the foundations of the science of algebra. The Hindus were the first to make systematic use of the letters of the alphabet to denote unknowns. They were also the first to classify and make a detailed study of equations. Thus they may be said to have given birth to the modern science of algebra."

H. Hankel wrote ([1], p. 94): "Indeed, if one understands by algebra the application of arithmetical operations to complex magnitudes of all sorts, whether rational or irrational numbers or space-magnitudes, then the learned Brahmins of Hindostan are the real inventors of algebra."

15. The symbol "+" was sometimes used in ancient India as symbol for subtraction. B. Datta believes that the ancient Indian "+" was a simplified form of the letter *kşa* ([4] Vol. II, pp. 14–15).

"gu" and "bhā" which are the first letters of the corresponding Sanskrit words yuta (addition), kṣaya (subtraction), guṇa (multiplication) and bhāga (division); similarly "mū" or "ka" was used for mūla or karaṇī (root), while the first letters of the names of different colours were used to denote different unknown variables. This introduction of symbolic representation was an important step in the rapid advancement of mathematics. While a rudimentary use of symbols can also be seen in the Greek texts of Diophantus, it is in India that algebraic formalism achieved full development.

The Indians classified and made a detailed study of equations (which were called *samīkaraņa*), introduced negative numbers together with the rules for arithmetic operations involving zero and negative numbers, discovered results on surds, described solutions of linear and quadratic equations, gave formulae for arithmetic and geometric progression as well as identities involving summation of finite series, and applied several useful results on permutation and combinations including the formulae for ${}^{n}P_{r}$ and ${}^{n}C_{r}$.

The enlargement of the number system to include negative numbers was a momentous step in the development of mathematics. Thanks to the early recognition of the existence of negative numbers, the Indians could give a unified treatment of the various forms of quadratic equations (with positive coefficients), i.e., $ax^2 + bx = c$, $ax^2 + c = bx$, $bx + c = ax^2$. The Indians were the first to recognise that a quadratic equation has two roots. Śrīdharācārya (750 AD) gave the well-known method of solving a quadratic equation by completing the square—an idea with far-reaching consequences in mathematics. The Pascal's triangle for quick computation of nC_r is described by Halāyudha around the 11th century AD as *Meru-Prastāra* six centuries before it was stated by Pascal; and Halāyudha's *Meru-Prastāra* was only a clarification of a rule invented by Pingala more than a millennium earlier!¹⁶

Thus, as in arithmetic, many topics in high-school algebra had been systematically developed in India. This knowledge went to Europe through the Arabs. The word *yava* in \bar{A} ryabhaṭiyabhāṣya of Bhāskara I (around 6th century AD) meaning "to mix" or "to separate" has affinity with that of *aljabr* of al-Khwarizmi (825 AD) from which the word algebra is derived. In his widely acclaimed text on history of mathematics, Cajori ([1], p. 97) concludes the chapter on India with the following remarks:

...it is remarkable to what extent Indian mathematics enters into the science of our time. Both the form and the spirit of the arithmetic and algebra of modern times are essentially Indian. Think of our notation of numbers, brought to perfection by the Hindus, think of the Indian arithmetical operations nearly as

^{16.} Pingala (prior to 3rd century BC), in his analysis of *chhandas* (metres), had also introduced the binary representation of numbers two millenniums before the great German philosopher-mathematician Leibniz (1695). Binary numbers is an essential feature in the working of the digital computer. This feat of Pingala will be discussed in a future issue of *Mother India*.

perfect as our own, think of their elegant algebraical methods, and then judge whether the Brahmins on the banks of the Ganges are not entitled to some credit.

But ancient Indian algebra went far beyond the high-school level. The pinnacle of Indian achievement was attained in their solutions of the hard and subtle number-theoretic problems of finding integer solutions to equations of first and second degree. Such equations are called indeterminate or Diophantine equations. But alas, the Indian works in this area were too far ahead of the times to be noticed by contemporary and subsequent civilisations! As Cajori laments ([1], pp. 97–98):

Unfortunately, some of the most brilliant results in indeterminate analysis, found in the Hindu works, reached Europe too late to exert the influence they would have exerted, had they come two or three centuries earlier.

Without some awareness of the Indian contributions in this field, it is not possible to get a true picture of the depth and skill attained in post-Vedic Indian mathematics the character of which was primarily algebraic.¹⁷

2.3. Trigonometry and Calculus

Apart from developing the subject of algebra proper, Indians also began a process of algebraisation and consequent simplification of other areas of mathematics. For instance, they developed trigonometry in a systematic manner, resembling its modern form, and imparted to it its modern algebraic character. The algebraisation of the study of infinitesimal changes led to the discovery of key principles of calculus by the time of Bhāskara II (1150 AD). Calculus in India leaped to an amazing height in the analytic trigonometry of the Kerala school in the 14th century.

Although the Greeks founded trigonometry, their progress was halted due to the absence of adequate algebraic machinery and notations. Indians invented the sine and cosine functions, discovered most of the standard formulae and identitites, including the basic formula for $\sin (A \pm B)$, and constructed fairly accurate sine tables. Brahmagupta (628 AD) and Govindasvāmī (880 AD) gave interpolation formulae for calculating the sines of intermediate angles from sine tables—these are special

17. Some of these number-theoretic contributions have been discussed in subsequent instalments of *Resonance*. The Oct 2002 issue highlighted Āryabhața's general integeral solution of the equation ax-by = c (5th century) and its close resemblance with Fermat's celebrated principle of descent (17th century), the Nov 2003 and Jan 2004 issues discussed the astonishingly modern approach in Brahmagupta's treatment (in 628 AD) of the equation $x^2-Dy^2 = 1$, especially his introduction of the composition principle (bhāvanā) which has turned out to be an important result in modern algebra. A paper "Brahmagupta's Bhāvanā—Some Reflections" appears in the volume *Contributions to the History of Indian Mathematics* (eds. G. G. Emch, R. Sridharan, M. D. Srinivas; Hindustan Book Agency). Discussion on ancient Indian algebra and combinatorics has also been made in *Srinvantu* Golden Jubilee issue 2003. There is an article on "Medhātithi, Pingala, Āryabhața and Brahmagupta" in *Shraddha* Feb–April 2005 (Sri Aurobindo Bhavan, Kolkata).

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cases of the Newton-Stirling and Newton-Gauss formulae for second-order difference. Remarkable approximations for π are given in Indian texts including 3.1416 of Āryabhaṭa (499 AD), 355/113 of Nārāyaṇa (1350 AD) and Nīlakaṇṭha (1500 AD), and 3.14159265359 of Mādhava (14th century AD). The *Sadratna-mālā* of Śaṅkaravarman gives the value 3.14159265358979324 which is correct up to seventeen decimal places.

The Greeks had investigated the relationship between a chord of a circle and the angle it subtends at the centre—but their system is quite cumbersome in practice. The Indians realised the significance of the connection between a half-chord and half of the angle subtended by the full chord. In the case of a unit circle, this is precisely the sine function. The Indian half-chord was introduced in the Arab world during the 8th century AD. Europe was introduced to this fundamental notion through the work of the Arab scholar al-Battani (858-929 AD). The Arabs preferred the Indian half-chord to Ptolemy's system of chords and the algebraic approach of the Indians to the geometric approach of the Greeks.

The Sanskrit term for half-chord "ardha-jyā", abbreviated as " $jy\bar{a}$ " or " $j\bar{v}v\bar{a}$ ", was adopted by early Arab mathematicians but pronounced as $j\bar{v}ba$. It was subsequently corrupted into "jyb". Curiously, there is a similar-sounding Arab word "jaib" which means "heart, bosom, fold, bay or curve". When the Arab works were being translated into Latin, the apparently meaningless word "jyb" was mistaken for the word "jaib" and translated as "sinus" which has several meanings in Latin including "heart, bosom, fold, bay or curve"! This word became "sine" in the English version. Āryabhaṭa's " $kotijy\bar{a}$ " became cosine. The sine and cosine functions form the backbone of modern trigonometry.

The tradition of excellence and originality in Indian trigonometry reached a high peak in the outstanding results of Mādhavācārya (1340-1425) on the power series expansions of trigonometric functions. Three centuries before Gregory (1667), Mādhava had described the series

$$\theta = \tan \theta - (1/3)(\tan \theta)^3 + (1/5)(\tan \theta)^5 - (1/7)(\tan \theta)^7 + \dots (|\tan \theta| \le 1).$$

His proof, as presented in *Yuktibhāṣa*, involves the idea of integration as the limit of a summation and corresponds to the modern method of expansion and term-by-term integration. A crucial step is the use of the result

$$\lim_{n \to \infty} (1^p + 2^p + \dots + (n-1)^p)/n^{p+1} = 1/(p+1).^{18}$$

The explicit statement that $(| \tan \theta | \le 1)$ reveals the level of sophistication in the understanding of infinite series including an awareness of convergence. Mādhava

^{18.} This was first proved in Europe by Roberval (1634) and Fermat (1636).

also discovered the beautiful formula

 $\pi/4 = 1 - 1/3 + 1/5 - 1/7 + \cdots$

obtained by putting $\theta = \pi/4$ in the Mādhava-Gregory series. This series was rediscovered three centuries later by Leibniz (1674). As one of the first applications of his newly invented calculus, Leibniz was thrilled at the discovery of this series which was the first of the results giving a connection between π and unit fractions. Mādhava also described the series

$$\pi/\sqrt{12} = 1 - 1/3.3 + 1/5.3^2 - 1/7.3^3 + \cdots$$

first given in Europe by A. Sharp (1717). Again, three hundered years before Newton (1676 AD), Mādhava had described the well-known power series expansions

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \cdots$$
 and $\cos x = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \cdots$

These series were used to construct accurate sine and cosine tables for calculations in astronomy. Mādhava's values are correct, in almost all cases, to the eighth or ninth decimal place—such an accuracy was not to be achieved in Europe within three centuries. Mādhava's results show that calculus and analysis had reached remarkable depth and maturity in India centuries before Newton (1642-1727) and Leibniz (1646-1716). Mādhavācārya might be regarded as the first mathematician who worked in analysis!¹⁹ Unfortunately, the original texts of several outstanding mathematicians like Śrīdhara, Padmanābha, Jayadeva and Mādhava have not been found yet—it is only through the occasional reference to some of their results in subsequent commentaries that we get a glimpse of their work.²⁰ Mādhava's contributions are mentioned in several later texts including the *Tantrasangraha* (1500) of the great astronomer Nīlakantha (1445-1545) who gave the heliocentric model before Copernicus, the Yuktibhāşa (1540) of Jyeşthadeva (1500-1610) and the Karanapaddhati of Putumana Somayāji. All these texts themselves were discovered by Charles Whish and published only in 1835. Among ancient mathematicians whose texts have been found, special mention may be made of Āryabhata, Brahmagupta and Bhāskarācārya (also known as Bhāskara II).

19. Mādhava also gave correction terms for the remainder in case one breaks off the infinite series after a partial sum of sufficiently high order; e.g., he gave $\pi/4 \sim 1 - 1/3 + 1/5 - \cdots \pm 1/n \mp R_n$; his estimates for R_n include $R_n = (n + 1)/2$, $R_n = [(n + 1)/2]/[(n + 1)^2 + 1]$, $R_n = [\{(n + 1)/2\}^2 + 1]/[\{(n + 1)^2 + 4 + 1\}(n + 1)/2]$.

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^{20.} Jayadeva's verses on the brilliant cakravāla method for solving the Diophantine equation $x^2 - Dy^2 = 1$ have been quoted in the text *Sundarī* of Udaydivākara (1073 AD). This text was discovered only in 1954 by K.S. Shukla. The algebraist Jayadeva is not to be confused with the 12th century Vaiṣṇava poet who composed *Gīta-Govinda*.

3. Later Developments

Let us remember... that she [India] was the mother of our philosophy; mother, through the Arabs, of much of our mathematics; mother, through the Buddha, of the ideals embodied in Christianity; mother, through the village community, of self-government and democracy. Mother India is, in many ways, the mother of us all. [Will Durant in *The Case for India* (1930)]

The Indian contributions in arithmetic, algebra and trigonometry were transmitted by the Arabs and Persians to Europe. The Arabs also preserved and transmitted the Greek heritage. After more than a thousand years of slumber, Europe rediscovered its rich Greek heritage and acquired some of the fruits of the phenomenal Indian progress. It is on the foundation formed by the blending of the two great mathematical cultures—the geometric and axiomatic tradition of the Greeks and the algebraic and computational tradition of the Indians—that the mathematical renaissance took place in Europe.

However, Indians virtually took no part in the rapid development of mathematics that took place during 17th–19th century—this period coincided with the general stagnation in the national life. Thus, while high-school mathematics, especially in arithmetic and algebra, is mostly of Indian origin, one rarely comes across Indian names in college and university courses as most of that mathematics was created during the period ranging from late 17th to early 20th century. But should we forget the culture and greatness of India's millenniums because of the ignorance and weakness of a few centuries?

Appendix: 20th century

André Weil predicted in 1936:

The intellectual potentialities of the Indian nation are unlimited and not many years would perhaps be needed before India can take a worthy place in world Mathematics.

Indians made significant contributions in several frontline areas of mathematics during the 20th century, especially during the second half, although this fact is not so well-known even among mathematics students partly because the frontiers of mathematics have expanded far beyond the scope of the university curricula. The two greatest Indian mathematicians of the 20th century were Ramanujan (1887–1920) and Harish-Chandra (1923–1983). As Harish-Chandra's name remains unfamiliar, we quote from a few tributes which could give the general reader some idea regarding the greatness of this outstanding mathematician who was a colossus in his field. (For more details, see December 1993 issue of the journal *Current Science*.) André Weil said that he knew only two mathematicians for whom technical difficulties simply did not exist:

Chevalley and Harish-Chandra. R. P. Langlands, himself a brilliant mathematician, found Harish-Chandra's analytic power and algebraic facility unsurpassed in his experience. In the *Bibliographical Memoirs of FRS 1985*, Langlands described Harish-Chandra's main work as

a Gothic cathedral, heavily buttressed below, but, in spite of its great weight, light and soaring in its upper reaches, coming as close to heaven as mathematics can.

In a lecture (1984) on Harish-Chandra at the Institute of Advanced Study (Princeton) where Harish-Chandra worked, V. S. Varadarajan remarked:

The originality and depth of his work will compel later generations to confer on him that luminous distinction reserved only for the most exalted figures of science. I do not believe that any of us here will ever again come across someone quite like him. In the austere simplicity and uncompromising nature of his approach to life, in his preference for solitary and profound reflection, and in his awesome capacity to discern and persevere after distant goals, he resembled the legendary figures from his country's ancient past.

Amartya Kumar Dutta

Suggested Reading:

1. F. Cajori: History of Mathematics, Macmillan (1919); AMS Chelsea (2000).

2. B. Datta: *The Science of the Śulba*, Calcutta University (1932); Cosmo Pub., New Delhi (1993).

3. B. Datta: *Vedic Mathematics*, Chap. 3 of *The Cultural Heritage of India*, *Vol. VI* (Science and Technology), eds. P. Ray and S. N. Sen, The Ramakrishna Mission Institute of Culture, Calcutta (1986).

4. B. Datta and A. N. Singh: *History of Hindu Mathematics*, Motilal Banarsidass, Lahore (1935–38); Asia Publishing House, Bombay (1962).

5. G. B. Halsted: On the foundations and techniques of Arithmetic, Chicago (1912).

6. Georges Ifrah: The Universal History of Numbers, John Wiley and Sons (2000).

7. G. G. Joseph: *The Crest of The Peacock: Non-European Roots of Mathematics*, Penguin (1990).

8. John F. Price: *Applied Geometry of the Śulba Sūtras in Geometry at Work*, ed. C. Gorini, MAA, Washington DC (2000).

9. T. A. Sarasvati Amma: *Geometry in Ancient and Medieval India*, Motilal Banarsidass, Delhi (1979; 1999).

10. A. Seidenberg: "The Origin of Mathematics" in *Archive for History of Exact Sciences* (1978).

11. A. Seidenberg: *The Geometry of Vedic Rituals in Agni, The Vedic Ritual of the Fire Altar, Vol II*, ed. F. Staal, Asian Humanities Press, Berkeley (1983); reprinted Motilal Banarsidass.

12. S. N. Sen: Mathematics, Chap 3 of *A Concise History of Science in India*, eds. D. M. Bose, S. N. Sen and B. V. Subbarayappa, INSA, New Delhi (1971; 1989).

13. S. N. Sen and A. K. Bag: *Post-Vedic Mathematics*, Chap 4 of *The Cultural Heritage of India* Vol. VI ed. P. Ray and S. N. Sen, RKMIC, Calcutta (1986).

14. S. N. Sen and A. K. Bag (eds.): The Śulbasūtras, INSA, New Delhi (1983).

15. C. N. Srinivasiengar: *The History of Ancient Indian Mathematics*, The World Press, Calcutta (1967; 1980).

As I look back upon the history of my country, I do not find in the whole world another country which has done quite so much for the improvement of the human mind. Therefore I have no words of condemnation for my nation. I tell them, "You have done well; only try to do better." Great things have been done in the past in this land, and there is both time and room for greater things to be done yet... Our ancestors did great things in the past, but we have to grow into a fuller life and march beyond even their great achievement.

Swami Vivekananda

(Complete Works, Vol. III, p. 195)

Mathematics, History and Science

How can mathematics, history or science help me to find you?

They can help in several ways:

1. To become capable of receiving and bearing the light of the Truth, the mind must be made strong, wide and supple. These studies are a very good way to achieve this.

2. If you study science deeply enough, it will teach you the unreality of appearances and thus lead you to the spiritual reality.

3. The study of all the aspects and movements of physical Nature will bring you into contact with the universal Mother, and so you will be closer to me.

The Mother

(On Education, CWM, Vol. 12, p. 249)

THE MAHARAJA OF BARODA AND THE COW-DUNG CAKE SELLER

[An early morning incident. It is a true story, not a fairy tale. This incident took place at a time when Sri Aurobindo lived in Baroda.]

THE day was just breaking. Darkness had not quite been dispelled. The Maharaja of Baroda, Sayajirao Gaekwad was out on the road for his morning ride. He was alone, unattended by his bodyguards. Also, he was wearing ordinary clothes, not his royal robes. Sri Aurobindo too was on the road taking his morning stroll. He was a little behind the Maharaja.

At that early hour there was hardly any passer-by on the road. The Maharaja saw an old woman standing on the wayside with a basketful of cow-dung cakes beside her, as if she was waiting for someone. Actually the old woman was looking for somebody to help her place the basket on her head.

Seeing a rider approaching, the woman called out, "Oh brother! Please get down from your horse and put this basket on my head. I am sorry to trouble you. But what can I do? Now that I am old, I no longer have my former strength. I have to depend on others to help me get along."

The King alighted from his horse and lifting the basket placed it on her head. The old woman was very grateful. She blessed the Maharaja, saying, "Thank you, my brother. May you live long. May you and your family enjoy prosperity in every sphere. May God bless you always."

Balancing the basket of cow-dung cakes on her head, the old woman slowly went her way. Poor old woman! She earned her livelihood by collecting dung, making dry cow-dung cakes and selling them for fuel. She could never have imagined that none other than the Maharaja of Baroda himself had lifted her basket to her head.

The Maharaja was about to mount his horse when he saw Sri Aurobindo approaching. He waited for him to come up. Although Sri Aurobindo was his secretary, the Maharaja looked on him as a dear friend and was always glad to see him.

Sri Aurobindo greeted the King with a smile, but the latter detected a hidden meaning in the smile. "Mr. Ghose," he asked, "What makes you smile?"

"No reason in particular," Sri Aurobindo replied smilingly.

The Maharaja knew that Sri Aurobindo was not a person given to laughter without cause. There must be some reason.

He said, "Sayajirao, the Maharaja of Baroda, was helping a poor mother by lifting a basket of cow-dung cakes onto her head—was that what made you smile?"

Sri Aurobindo replied, "No, it was not that."

"Then what was it?" asked the King.

Sri Aurobindo said, "Maharaj, you helped a poor old woman by lifting a basket of cow-dung cakes and putting it on her head. It was, no doubt, a good deed. But I

was wondering what would be a really great act on the part of Shri Sayajirao Gaekwad, the Maharaja of Baroda. Would it be to place a basket of cow-dung cakes on the head of an old woman, or to relieve her from carrying such a burden?"

The Maharaja realised the significance of Sri Aurobindo's words and at once galloped off on his horse after the old woman. Soon he caught up with her, enquired of her what her name was and where she lived.

The next day the Maharaja sent an officer to bring the old woman to the court. She came to the court very much frightened. She saw that the man who had helped her with her basket the previous day was sitting on the throne. She began to tremble with fear.

Gently and lovingly, the Maharaja called her to come to him. He allayed all her dread and restored her confidence.

He had a brick house built for her to live in and took charge of bearing all her expenses as long as she lived.

After accomplishing this task, when the Maharaja next saw Sri Aurobindo, he told his dear friend all that he had done.

Sri Aurobindo was very pleased. Sincerely thanking the Maharaja, he said, "This is the work worthy of you." Sayajirao too basked in the glow of an inner happiness.

This was how by Sri Aurobindo's grace a poor seller of cow-dung cakes turned into a king's adopted sister.

PRANEETA CHAKRABORTY

(Translated from the Bengali by Jyoti Sen from the article that appeared in Srinvantu.)

Bibliography

- 1. Sayajirao Ni Pratibhā by Mukul Kalarthi.
- 2. Vadodara Ma Pāvan Paglā by Ranadhir Upadhyaya.
- 3. Amne Sri Aurobindo Ni Baat Kaho.

Sri Aurobindo belongs to the future: he is the messenger of the future.

The Mother

(Words of the Mother, CWM, Vol. 13, p.14)

SCIENCE, RELIGION AND YOGA

WE are moving towards an age of unity and synthesis. Therefore do we find that once mutually opposing parties have perforce been made to come and work together in the great assembly of the world. The practitioners of science are sharing a common platform with the ministers of religion. The bitter enemies of the nineteenth century who fought tooth and nail to demolish each other's empire are now beginning to look closer and deeper, seeking to fulfil themselves with the help of the other. The effort started around the middle of the twentieth century when modern science, the triumphant victor over the religious impulse of the West entered the East, and more specifically India, through a compulsion of political and other circumstances. And as it happened with all the forces that poured themselves like rivers and streams into the oceanic heart of India, they underwent a sea change. For the first time perhaps it was revealed to science that its findings and discoveries are not necessarily opposed to the discoveries of religion but rather confirmed by it. For here it met a religion more ancient than the hills, vaster and therefore mightier than any narrow sectarian impulse in thought or feelings, higher than the Himalayas in its sublime reaches of flight. So also it found here already existing a science that had gone deeper than matter and farther than the outposts of a sense-bound mind. It must have been a strange spectacle of two vastnesses, a vast religion and a broad-based science, mixing beautifully with each other as two oceans would. For it is a subtle law of mutuality that when narrowness meets either its own kind or a vastness too great for its comprehension, it feels threatened. But when two vastnesses meet they enhance each other. So was it in India of old with regard to science and religion. But by the Middle Ages, the once mighty body of these two heroes and spearheads of the human race were growing old and weak. Their spirit was ever youthful but their form enfeebled and needed a new body; such a new mould came in the form of the new science from the West cast in the bronze of reason and sensible facts. And by their mutual contact, there grew an admittance, at least an acknowledgement of each other.

Strangely and interestingly this reconciliatory meeting of the two started when modern science first confronted the phenomenon of yoga in India. For in yoga these two seeming opposites, the religious impulse and the scientific impetus had already met and embraced each other, and as a result, each had been uplifted to a greater height and breathed a vaster and purer air. In the ordinary human consciousness these two, as indeed everything else appears divided and separated, because partitioned and limited. Thus, for example, science had chosen as its sovereign field of study the kingdom of the material world while religion had confined itself to exploring the relations between man and his creator through rites and rituals. But religion soon lost itself in an excess of symbols, while science lost itself in the forest of facts and figures. The average man was unable to relate the one with the other. He either discarded one for the other or else held them as separate things not to be mixed up
with each other. Yet one could not avoid the confrontation since they often ran into each other. Was the moon of Shiva a mystic symbol or was it the hard rock on which the Apollo lunar module had landed? Was Ganges a sacred river born of the Heavens or was it just another body of water like any other river? If religion without science was like a man who knows the direction in his heart but was blindfolded in his eyes, then science was like a man with sharp and keen eyes and swift legs but without a purpose or direction in the heart.

But yoga had found the answer and in a sense reconciled the two opposites. There was here an eye that peered deeper into the unknown, a sight not bound by our sense-mind, a sense that knew objects by an inner and intimate touch, limbs that carried us like wings above the lights and shadows of beliefs and non-beliefs, above the clouds of doubt and agnosticism on a higher flight, to a surer and completer vision of the soul. But also the yogi knew this material world of numbers, name and form, nāma-rūpa. True, he had crossed the boundaries of material form and stepped into the other dimensions, crossed even their outposts and entered the kingdom where all name and form are annulled in an ever-living oneness. And of course so enamoured was he of that glory where the mind reaches not that he left the material world and other worlds as toys and playthings for others in their infant strivings. Yet, by the very fact that he led an embodied life, the yogi displayed a natural mastery over the energies of matter and life and mind such as science could not even dream of even in its flights of fancy. The yogi was a phenomenon apart, he knew life and matter better than the scientist did, and he also knew the titan and the gods better than the religionist did. And he also knew something else, something more that neither of them knew, a third, a spirit and godhead from which both,-the scientific seeking and the religious impulse were born.

Quite naturally, science grew increasingly curious of the yogi. At first however, it decried him as a mere humbug and the yogi cared not. Next, it admitted him but tried to explain away all his truths on the basis of the sole truth of matter. This tendency, reminiscent of the later part of the last century is still prevalent in certain pseudointellectual circles. Pseudo because it is a semblance of intellect but has neither clarity nor depth and even its facts of both science and yoga are not straight or complete, but only that which has been gathered from preformed opinions in the Sunday tabloids. About yoga it is even more ignorant except what it has gathered from folklore or overheard, or half-gathered from the discussions of others. But this tendency to pass off our ignorance as knowledge is seen in scientific circles as well. It is perhaps only to be expected. For the average scientist is not of a different birth. In him is still the average man hiding behind the decent cloak of science. This dress is no doubt neat and well-ironed, its material perhaps of a high quality or at least produced and sold in fancy stores. But the wearer and his stuff of consciousness are of the same mettle. the average low-pitched note that can at best serve only as a background and support for our all too common cacophony of life. A true synthesis cannot come from such a one. He is comfortable in his closed and narrow house built of the mud of scientific facts. The sun is too bright for him and he admits only as much of it as has filtered through the draped windows in his walls and the skylight in his ceiling. The rest he chooses to ignore. He is like the man who reduces music to mathematics and thinks he has done a great job of reconciling a great art and a great science. But music is much more than mere mathematical notations which half reveal and half conceal the great rhythm. To know music the scientist must play it himself and identify with the total experience. Then he shall know that the most important part cannot be captured by the laws of mathematics but only experienced in the delight of oneness with the song and the heart of the singer. Similarly, the form and figures of this world half reveal and half conceal a much greater Truth. That Truth is sealed to the eye of the scientist but self-revealed to the yogi. This is so not because of any essential superiority of a yogi over a scientist. Presuming the genuineness of both types, each one demands the fundamental qualities of an earnest seeking, dedication to the goal, sincerity and one-pointedness in one's pursuit, perseverance in the face of repeated failures and denials, courage to explore the unknown even if it means a breaking free from the known. Both demand a discipline and concentration that borders on austerity. Yet there is a fundamental difference between the two approaches. It is partly a question of degree and intensity of engagement in the search for Reality or Truth, and partly in the means and the processes. A quick glance at some of these would help.

As to the first difference, the scientist engages with Truth largely by his sensebound physical mind. It is only secondarily that his other parts get involved, and these mainly to support his active physical mind, and he brings in the aid of reason only later to formulate his observational data in terms of a general law. Most scientists, except the rare one, do not engage in the search with their entire being. Though whenever they do that a new door opens, an intuitive beam touches their minds and a paradigm shift is effected. The yogi, in contrast, discards the sense-mind as an inadequate instrument. Instead he awakens the discriminating intelligence, usually asleep in the higher regions of our thinking mind. He turns the light of this intelligence to search for the truth behind appearances. But he is not limited by this faculty alone. The paradigm of yoga based on the experience of yogis over thousands of years knows that it is possible, even desirable for the fullness of an integral understanding of Truth, to engage in the seeking with our entire being. Emotions, will, life-force and even the body can participate in the search and find their Absolute in their own way since all ultimately derives from That. The scientist can never understand this because to him Reality is not a living, conscious Being, but a mechanical, inconscient energy acting and creating forms and objects impersonally in the void. All else that we attribute to this reality is, according to science, a play of material energies in our all too physical brain. To this objection, the yogi simply smiles and says, "As is our faith so does the One reveal Himself or Itself to us." For this very reason, we should be careful in our enthusiasm when we find the statements of some scientists echoing the revelations of the yogi. No doubt, since the ultimate Reality is one and the universes are a single plan therefore one finds the same image behind everything. But like the kaleidoscopic mirrors, the images are many and even identical but the Living Conscious Being is one. The image is a reflection and not the Truth. So when the scientist speaks of oneness and even of many dimensions, he is saying the same thing as the yogi and yet not the same thing. To the yogi, at each level, behind the form is the play of energy and forces. But he does not stop there. For, behind the forces and energies there is the Idea, an Intelligent Will. And yet further, behind the Intelligent Will there is the Delight of the Conscious Being. This is still a very, very far cry, a distant dream if even a dream at all, for the scientist who is still struggling to construct the image of Reality by picking up and placing together the broken reflections and shadows created by his own inadequate vision in the mud of matter.

There is another step that the yogi takes which is missing in the field of science. Knowing the gross inadequacy of the instruments of Nature he dives deep within to discover the one instrument that can truly show him Truth and God without any distortion. That instrument is not found in any mental faculty or in any other part of Nature but is embedded in the very substance of our soul. Therefore the very first step that a yogi takes is to engage in a reverse concentration, a withdrawal of consciousness from the phenomenal world and a turning it inward and upward. By doing so he disengages his pure divine essence from the now inadequate instruments of Nature. True, many, perhaps even most yogis are so satisfied with it that afterwards they do not care to use this inner diamond to light up their outer life and phenomenal world. But if they care, as some indeed do, they see the world much better and in a truer way. The scientist, on the other hand, rushes to examine the phenomenal world with his lens and probe but forgets to remove the dark scales before his eyes. At the most he carries the small and flickering lamp of his mind into the darkness of matter and hopes to find there the timeless secrets and read the sealed book of life. He opens the carefully preserved books but knows not the key to the hieroglyphs. With great effort and patience he tries to read the hieroglyphs but the sense escapes him. For his mind is a child of the moment and therefore cannot understand the word of eternity. He sees the germ and the bacillus but is unable to see the will or feel the vibrating dance of forces behind it. He reads the symptoms of illness and his instruments faithfully measure each chemical in his body but he misses the deeper and hidden causes lurking in his subconscient mind and in the dark and unseen corners of his life. His seeing makes him even more blind since he clutches at the images of a deeper truth cast upon this material world as the very truth and is so enamoured by the distorted reflection that he lifts not his eyes to see that which is being reflected upon our senses.

But what about the marvellous instruments that have made life better? Comfortable maybe, but not necessarily better because of that. Our outer perfection becomes our road to perdition since it sets rigid boundaries to further progress to other levels of existence; our conquest over time and space paralyses our limbs; the material victory over outer nature turns into an inner defeat; each new equipment that is meant to liberate life imprisons our consciousness; each added instrument is like a biological amputation of some faculty within us. The machine that saves us also enslaves us, the medicine that cures also enfeebles our natural powers to heal, the invention that brings pleasure and comfort to our doorstep also drags depression and agitation as its shadow. Power available at the push of a button threatens to sink the entire civilisation into darkness, also at the push of a push button! So let us not be too enamoured by the propaganda of it all. The yogi does not make headlines nor does he receive a Nobel Prize, nor does he popularise his discoveries through research journals for whatever they are worth, but for that reason his knowledge is not any less true.

Yes, the two must come together but not by the way of the materialistic monism that science, even the most liberated quantum science currently preaches. It is still the same old gospel that world and life and God are nothing but a play of tiny, inconscient particles. It is the same bottom-up view restated differently, that it is not the mud that creates the lotus but the grains of sand in it! What is needed is the topdown view,---the yogi returning upon the world and seeing it as a robe of the One reality. The true reconciliation and synthesis cannot come if the scientist continues to look at matter through spectacles made of mud. His instruments cannot show him more. Hypnotised by the image of his own making he would not be able to see what the yogi sees. It is not just a re-interpretation of his discoveries but the very means and method of his search that must change. The true reconciliation will come when the scientist, aspiring to expand his consciousness, breaks free from his smaller human mould and takes to yoga. But not the yoga that involves only one part or faculty of the being while leaving the rest to continue in the ways of the Ignorance. The yogi too must return upon the world and explain it with the surer vision of his soul. It is not enough that he lifts his hands in worship to the heavens and saves his soul. He must lift his entire being to the heights of his consciousness and equally learn the secret of saving his body as well by the yoga-force. The scientist fulfilled in the yogi, the yogi looking into outer material life without disdaining the phenomena but enlightening it as a scientist is the way of synthesis. When the yogi and the scientist meet in the same person, in the same field of consciousness then we shall have a truer science and a more perfect yoga.

Ways of the Spirit

How shall ascending Nature touch her goal? Not through man's stumbling peering intellect And its carved figures rigid and erect, But the far subtler vision of his soul.

SCIENCE, RELIGION AND YOGA

An algebra of mind, a scheme of sense, A symbol language without depths or wings, A power to handle deftly outward things Are his scant earnings of intelligence.

The Spirit keeps for him its ampler ways, A sense that takes the world into our being, A close illumined touch and intimate seeing, Wide Thought that is a god's ensphering gaze,

A tranquil heart in sympathy with all, Its will vast-visioned, poised, imperial.

Sri Aurobindo

(Sonnets, p. 13)

ALOK PANDEY

There are two necessities of Nature's workings which seem always to intervene in the greater forms of human activity, whether these belong to our ordinary fields of movement or seek those exceptional spheres and fulfilments which appear to us high and divine. Every such form tends towards a harmonised complexity and totality which again breaks apart into various channels of special effort and tendency, only to unite once more in a larger and more puissant synthesis. Secondly, development into forms is an imperative rule of effective manifestation; yet all truth and practice too strictly formulated becomes old and loses much, if not all, of its virtue; it must be constantly renovated by fresh streams of the spirit revivifying the dead or dving vehicle and changing it, if it is to acquire a new life. To be perpetually reborn is the condition of a material immortality. We are in an age, full of the throes of travail, when all forms of thought and activity that have in themselves any strong power of utility or any secret virtue of persistence are being subjected to a supreme test and given their opportunity of rebirth. The world today presents the aspect of a huge cauldron of Medea in which all things are being cast, shredded into pieces, experimented on, combined and recombined either to perish and provide the scattered material of new forms or to emerge rejuvenated and changed for a fresh term of existence.

Sri Aurobindo

(The Synthesis of Yoga, CWSA, Vol. 23, p. 5)

MOMENTS, ETERNAL

(Continued from the issue of March 2006)

Classes for the Little Ones

I HAVE already said something about the classes for the little ones. Now, let me tell you how these classes began.

In 1950, on 17th November the captains of the little boys and girls aged between four and twelve decided that they would speak only in French with them during the sports activities. They informed the Mother about this decision. She was delighted. She too decided that everyday She would spend a little time with them and speak French. After their sports the children used to receive groundnuts from the Mother in the courtyard of the Guest House. This is the same Guest House where the Mother and Sri Aurobindo met for the first time on that auspicious day, 29 March, 1914.

On the first day the Mother asked Kokila, a little girl at that time:

"*Quel âge as-tu*?" (How old are you?)

Kokila answered:

"Je m'appelle Kokila." (My name is Kokila)

"Et comment t'appelles-tu?" (And what is your name?) the Mother now asked. *"J'ai huit ans,"* (I am eight years old) Kokila answered a little flustered.

All those present there could not control their laughter. The Mother too thoroughly enjoyed Kokila's answers. For several days this story of Kokila's first conversation with the Mother did the rounds in the Ashram.

Kokila's story reminds me of another.

Frederic the Great knew each and every soldier's face in his army. And whenever he saw a new face in the army he would ask three questions: How old are you? How long have you been in my army? Are you satisfied with your pay and food?

A new French recruit had just joined Frederic's army. He did not know any German at all. So his general tried bravely to teach him the answers to the three questions he would be asked. Frederic would first ask about his age followed by the other two questions. However this time as soon as he saw the new soldier he asked him the second question first:

"How long have you been in my army?"

The French soldier answered hurriedly:

"Twenty-one years."

Frederic was quite astonished and asked:

"What! How old are you then?"

"One year," the soldier replied.

"Dear me! Either you or I must be mad!" Frederic exclaimed.

"Yes, both," the soldier concluded with a broad smile. That was the only answer he had learnt for the third question. Frederic was taken aback and remarked:

"This is the first time that any of my soldiers has called me a madman!"

When the French soldier noticed that the king looked rather displeased, he quickly added in French to try and calm him:

"Actually I don't know any German!"

"Is that so?" said Frederic. "You don't know German. Then you should get down to learning it as fast as you can. If you have decided to work in our army then it is absolutely imperative for you to learn our language."

Tara, Usha, Nirata, Sumedha and some other captains resolved to speak in French with the little ones. The Mother also decided to take regular classes for the little ones. On 19th November 1950 the Mother brought Her first typed lesson. On this first lesson sheet was a drawing of a bee. The Mother distributed each day's lesson to Tara who would see that all the boys and girls went through it very carefully. The next day the Mother would ask the children questions about the lesson.

The classes were stopped for a while because the Mother became extremely busy for the 24th Darshan. Then Sri Aurobindo's sudden physical withdrawal left the Ashram in a daze. Therefore the French classes of the little ones remained suspended for some time.

The Mother resumed these French classes on the 17th of December, the same year.

Sunday was for dictation, Tuesday for recitation and Friday for story-telling. The Mother used to write down the dictation and the recitation herself in Tara's notebook. She generally composed the texts for the dictation and the recitation herself. The child who was best at recitation got a special prize from the Mother.

On Fridays She told them stories. This story-class started with *Belles Histoires* [*Tales of All Times*] and *Paroles d'autrefois* [*Words of Long Ago*]. From time to time She would humorously recount to the children incidents from Her own life. She recounted to the children so many stories from so many different countries: India, Persia, Japan, China, France and several others. The stories came alive because of the Mother's way of narrating them. We felt as if we were living in the country where the story was taking place.

All these memories return to thrill me so very often...

The Map of India and the Mother's Symbol

From the day this country was partitioned into India and Pakistan I have been unable to look at a map of India. I just refuse to look at it. My whole being, my body, my mind and heart feel terribly pained when I see a map of divided India. Our land of India, our birthplace, cannot remain divided. In 1947 on 15th August Sri Aurobindo declared that India will become one again.

I carry that immortal promise in my bosom everywhere. I have just one prayer to our Lord Sri Aurobindo:

"O Lord, O God, make India one again, make India one again!"

In Bankim Chandra's *Anandamath*, Bhavananda expresses the author's inmost feeling, the Indians' inmost conviction. Bhavananda sings:

Bande Mataram Sujalam suphalam malayajasheetalam Shasya shyamalam mataram!

Mahendra is somewhat puzzled as he listens to this song. He does not understand what it means. Who is this '*sujala*, *suphala*, *malayaja sheetala*, *shashyashyamala*' Mother? But Bhavananda does not answer and continues singing:

Shubhra-jyotsna-pulakita-yaminim Phullakusumita-drumadalashobhinim, Suhasinim sumadhurabhasinim, Sukhadam varadam mataram.

Mahendra retorts :

"But we're talking about a country, we're not talking about Mother."

"We do not believe in any other Mother," Bhavananda replies. "Janani janmabhumischa swargadapi gariyasi. (The Mother and one's birthplace are greater even than Heaven.) We take this birthplace to be the Mother. We have no mother, father, brother, wife, son, house, home. We have only that 'sujala, suphala, malayaja sheetala, shashyashyamala'."

A surprised Mahendra then asks: "Who are you?" Bhavananda answers: "We are the children." "Children? Whose children?" "The Mother's children."

Let me tell you now what Rabindranath said about his own country, India. Pankaj Mallick writes:

At number 1 Garsten Place at the main entrance to the Radio station, from the gate upto twenty feet in length and eight feet in width in the centre of the pathway within a circle was a map drawn in green cement. It was the map of India. The

Director-General of All India Radio then was A. S. Bokhari and the director of the Calcutta station was Ashoke Sen.

Once on Mr. Bokhari's and Mr. Sen's invitation the 'Vishvakavi' (the World-Poet) visited the Radio station. When Rabindranath arrived everyone got busy to welcome him with due honour and respect. I too was among the various people and artists present that day.

Mr. Bokhari and Mr. Sen were showing the poet the way. Quite unconsciously they walked over the map that was drawn near the entrance. The poet, however, stopped for a few moments in front of the cement-map, looked at it with bowed head and with great dignified reverence went around the path in order to avoid stepping on the map and continued to follow the two men in front.

The Radio station directors who had just a few moments earlier unknowingly walked over the Indian map, turned around to look at this reverent attitude and felt naturally deeply embarrassed. Seeing the expression on their faces I was not at all wrong in my conclusion. 'Kavi' then went inside and observed:

"O soil of my country, I bow down to thee!"

He pronounced the Bengali word for soil, *mati*, with such softness of speech, as if he were saying "You can touch your Mother with your head, how can you touch your Mother with your foot?" Because *mati* was ma - ti (meaning ma = Mother and ti = like or like Mother).¹

Let me now come to Vivekananda. He said:

Our sacred motherland is the land of religion and philosophy—the birthplace of spiritual giants—the land of renunciation, where and where alone, from the most ancient to the most modern times, there has been the ideal of life open to man.

I will tell you now about that well-known quotation of Sri Aurobindo's :

Others look upon their country as an inert piece of matter—a few meadows and fields, forests and hills and rivers—I look upon my country as the Mother. I adore Her. I worship Her as the Mother.

The year was 1893. After his education in England, Sri Aurobindo returned to India to dedicate his life to the service of his motherland. He vowed that the country had to be freed from the shackles of foreign domination.

At about the same time another Indian set out for the West in order to lay before the world the real truth about his country and the *sanatana dharma*. This was Swami Vivekananda.

1. Amar Jug Amar Gaan, Pankaj Mallick.

1893 turned into a memorable year as it witnessed two voyages in opposite directions by two sons of India out of their love for the country.

We know that Bankim Chandra, Rabindranath, Vivekananda and Sri Aurobindo looked upon their country as the Divine Mother. And that is why they have all unveiled the real face of India to the world.

When Vivekananda returned from the West he said:

I loved India even before arriving in the West. But now (while returning to India from the West) I feel that each atom of India's dust is pure, the very air of India is pure. India is my punyabhumi: my pilgrimage.

Vivekananda continues :

I am prostrate before these hundreds of centuries of India's brilliant unfolding history in awe. ...No force in heaven or hell can stop this march of victory.

1947, August 15th. In front of Sri Aurobindo's own eyes his India, his motherland, was cut into two. But Sri Aurobindo came out with a luminous message on that day. He emphatically declared:

By whatever means, in whatever way, the division must go; unity must and will be achieved, for it is necessary for the greatness of India's future.

1950, 18th October. It was Pranab's birthday. And Durga-puja or *Mahaashtami* as well. On this day at an auspicious time, on the southern wall of the Playground (where the Mother used to stand and take the salute for the children's March Past), the map of India was born. The inspiration and design came from Tejen-da, son of the celebrated Bagha Jatin. Tejen-da used to look after the little ones. Everyone called him 'Borda'. Tejen-da had taken this initiative without informing Pranab so as to give him a surprise on his birthday.

Manoranjan-da entrusted Bibha to make a royal swan in cotton to decorate the children's courtyard for games. Almost ten full bags of cotton were used to make this swan. Bibha completed the swan with infinite patience, effort and skill. It was exquisite! This swan too was meant to decorate the children's courtyard on the occasion of Pranab's birthday. There is a photo of the Mother with this swan in the *Bulletin*. The swan was brought to the Playground at three in the afternoon. While Bibha was busy setting up the swan at the right spot, Tejen-da asked Bibha:

"Can you draw the map of India on this wall?"

Bibha happily agreed. After having strained all morning making the swan, she now had to draw the map of India! Tejen-da asked her what she would need for this. Bibha suggested that Krishnalal-ji be requested to make the outline of the map first. Some green leaves, *maida* (refined wheat flour) and some yellow *chandramallika* flowers (called *Life-Energy* by the Mother) to make the Mother's symbol in the centre of the map were brought at once.

There was such excitement in the air! As if a *mandapa* or pavilion was being made for Durga-puja. Krishnalal-ji drew the outline of the Indian map. And Bibha at once got down to doing her part with the help of two-three other people. There was not much time on hand. By five o'clock the Mother would be back from the Tennis Ground. The map had to be finished by then. Some people were cladding the *maida*-dough on the wall under Bibha's instructions and then she herself started pasting the green leaves. Once this was over Bibha quickly got down to completing the Mother's symbol in the centre with the yellow *chandramallika* flowers. Both the map and the symbol looked lovely! Just as all the work was over, the Mother's car arrived in front of the Playground door.

The Mother noticed the map of India as soon as She entered and She looked delighted. This map of India did not include Burma. Then on everyone's request the Mother agreed to make this map a permanent feature of the Playground. In order to make it permanent She herself drew the map of undivided India before Monoranjanda had it cemented.

Now we can see this map of undivided India on the southern wall of the Playground to our heart's content. Besides, it was drawn by the Mother herself. On the Mother's map, we see not only Pakistan and Bangladesh but also Nepal, Bhutan, Sikkim, Burma and Sri Lanka as part of undivided India. The Mother drew India as She saw the nation in Her divine vision. India was no more divided. Mother India herself, the World-Mother revealed herself. And this unforgettable event happened before Sri Aurobindo's physical withdrawal.

Mother India herself had come down in a human form. By drawing this form with Her own hand, the Mother showed the whole world that India could not remain divided. In the subtle world this division has not happened:

...the division was not decreed, it was a human deformation, unquestionably it was a human deformation. (The Mother)

This sand and cement map drawn by the Mother is sea-green in colour. The outline is golden. Our eyes light up with joy as we drink in this vision of undivided India, of Mother India to our heart's content.

What an interesting coincidence! That map of India drawn within a circle in Garsten Place at the All India Radio headquarters was also made in green cement!

And it is Mother India herself, the Divine Mother of the world and the universe, Mother Aditi who says :

It is the map of the true India in spite of all passing appearances, and it will

always remain the map of the true India, whatever people may think about it.

The Mother's symbol in the centre which was made with yellow *chandramallika* flowers by Bibha, was on the Mother's instructions made in copper by a coppersmith known to Monoranjan-da and Gangaram got these petals fixed on the map. Here is the significance of the Mother's symbol:

The central circle represents the Divine Consciousness.

The four petals represent the four powers of the Mother. The twelve petals represent the twelve powers of the Mother manifested for her work.

*

*

It is the symbolic design of the white Lotus of Supreme Consciousness, with the Mahashakti (the form of the Mother as universal creation) at the centre in her four aspects and twelve attributes.

India is not the earth, rivers and mountains of this land, neither is it a collective name for the inhabitants of this country. India is a living being, as much living as, say Shiva. India is a goddess as Shiva is a god. If she likes, she can manifest in human form.

Every evening the Mother would stand in front of this map of undivided India and take the salute of Her children during March Past. At that divine moment the whole being was thrilled with the firm inner conviction that India was never divided and that it could never be divided. And by accepting Her children's salute the Mother was reassuring us that India was indeed one. As we watched the Mother's firmness in this challenging aspect of a warrior it would fill our hearts with bliss. In a second the pain and anguish of losing one's country would vanish into thin air.

The soul of India is one and indivisible.

(*To be continued*)

Priti Das Gupta

(Translated by Maurice Shukla from the original Bengali Abismaraniya Muhurta)

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I AM BUT HIS

Upon encounter, some know my soul Others merely my shadow see. I know He is I. However, I do not know who I am. Arjuna, the archer par excellence of Kurukshetra Perplexed and paralysed at the crossroads In old entrenched dharma: Nurturing disinterest in worldly possessions and Seeking to live the ideal of kinship and respect for elders— Unaware of the innate dharma: Becoming His follower for He is the only true Charioteer of self-Heeding the call of true Dharma: Engaging in alchemic aspirations of spirit Liberated from the transient righteous notions of duty Transcending stifling moral conceptions of right and wrong Becoming His instrument, agent and worker, Consecrating integrally self, ideals, and act Offering the fruits and outcomes of toil As the prayer of body, mind, and soul Pursuing His will and becoming His-minded.

Arjuna, the pursuer of the self-Yagna after the epic war Exploring the realms visited once but now in search of inner-self Discovering greater reality within and beyond Recognising the enduring lessons of transience of life's affairs Like a droplet of water in a perpetual cycle of 'cloud to ground to ocean'— It is in Oneness with Him that Arjuna's body, mind, and soul find fulfilment.

O Arjuna of Krishna! Invoke within me The Spirit that leads me to my destiny at His feet.

Om Shanti, Shanti, Shanti!

ARUN VAIDYA

DEVOTIONAL POETRY IN TAMIL

(Continued from the issue of March 2006)

3. Jain Bhakti Poetry

JAINISM does not believe in a creator God and hence the very term, Jain bhakti might sound somewhat paradoxical. For the aim of devotional poetry is an at-one-ment with the Supreme. Referring to the yoga of divine love as the very summit of the triple path (of karma, jnana and bhakti), Sri Aurobindo says:

By union in will and works we become one in the omnipresent conscious being from whom all our will and works have their rise and draw their power and in whom they fulfil the round of their energies. And the crown of this union is love; for love is the delight of conscious union with the Being in whom we live, act and move, by whom we exist, for whom alone we learn in the end to act and to be. That is the trinity of our powers, the union of all three in God to which we arrive when we start from works as our way of access and our line of contact.¹

Seen from this view, we could turn away saying Jainism by its very nature does not come under the category of bhakti poetry. Yet, Jainism too has been such an integral part of Tamil culture that it has not escaped creating devotional poesy of a very high order. Not only lyrics and narratives, Tamil Jainism also has a massive epic, *Jeevaka Chintamani* which has beautiful passages of prayers for self-illumination.

The age of Jainism in Tamil Nadu has not been determined as yet with absolute accuracy. Suffice it to say it has a very ancient presence stretching back to the Sangam era. The monks belonging to the religion were known as *Samanas* (from *Sramana*) and the householders as *Sravakas* and the religion itself is said to have entered South India in the Mauryan period. Because the monks were obviously a visible presence as teachers, the pathway came to be known as the Samana religion. The monasteries were known as *Samana Palli* (like the Buddhist *Vihara*) and were organised educational institutions. Even today schools are known as '*palli-koodam*' (the hall of education) in Tamil.

If they were a big presence in the first millennium, the Jains must have been an extremely spartan group, engaged in spreading ethical precepts. It was natural enough for the monks were mainly engaged in the area of education. It is also possible that if there was a literature that spoke of other harmonies extolling the religion, that was destroyed due to communal clashes. But the ethical texts were naturally spared as they helped in building the character of young minds.

Probably due to this select guardianship of some works, there has been some

confusion relating to the religion of the authors of some of these eighteen didactic works, collectively known as "*padinenkeel-kanakku*". Foremost among them happens to be *Tirukkural*. Interestingly enough, Jains, Buddhists and Hindus claim the author, Tiruvalluvar, for their religion. The Jain argument is based on the very first decad:

Like alpha and the alphabet, so God the prime mover of the world.Of what use all knowledge, unless one seeks The source, the Lord's lotus feet?Prosper those at the hallowed feet that rest

On flowers of devotion.²

After mentioning God in the first couplet, the rest of the nine speak of the glory of God's feet. While those who deny a Jain authorship to *Tirukkural* point out that Jainism does not accept the presence of a creator God, others speak of the term used in Tamil: *Adi Bhagavan* which means "first God". When you speak of a Supreme Lord, how can you speak of a first or second god? The pro-Jain lobby also refers to the use of "Adi" for the first of the Tirthankars, Rishbhadeva. Again, they ask: if "Adi Bhagawan" refers to the Supreme God, how come he is praised as one who has conquered his five senses (verse 6)?

The controversy really need not detain us. It is agreed that *Tirukkural* is a very ancient text and that its author could have been a Jain, though it may not speak openly of Jain approach to bhakti. Devotion in Jainism in its earliest days in Tamil Nadu seems to have been firmly rooted in ethical uprightness. This need not surprise us, as the Jains began their early labours in the land as teachers. Because of the high morality they preached to the growing minds, people actually welcomed their presence and these ethical texts attributed to Jains have been current all through these centuries. Some of them have an opening verse of prayer which is, of course, exclusively Jain and constitute our first glimpse of Jain devotional poetry in Tamil.

The *Naladiyar* is attributed exclusively to four hundred Jain ascetics, each of whom composed a four-line verse for the anthology. The work opens with a prayer by Padumanar:

It is hard to know the appearance and withdrawal Of a rainbow; birth and death too are such. So it is best to salute and pray to our Lord Whose feet do not touch the earth, So that our wishes come to fruition.³

Since the earthly life given to humanity is of uncertain length, one must needs

regulate one's life in such a way as to reap the maximum good out of it. Jainism believes in rebirth and it follows that an ethically pure life would ensure a future birth that would not be haunted by the evil of the past. Having indicated this through the opening prayer, the *Naladiyar* deals with the different facets of life, of moral evil and of moral good, and returns to the subject of rebirth now and then. A telling simile confronts us when our past karma is said to search for us in our new birth and gets at us as surely as the lost calf that gets back to its mother cow! Beware, then!

The Realised Soul—Arhat—is referred to as the Lord and God in all the Jain prayers in Tamil. The Arhat has shoreless knowledge, is not confined by age, remains nameless and raceless (*gottiram-inmai*) and is the Lord of this earth. However, the Jain way of life has set up figures of Arhats, mostly Tirthankaras and consecrated them in temples. Prayers to the visible images in the temple help one achieve concentration. A very familiar image to whom Jain prayers are addressed is the Arhat seated beneath the Ashoka tree. The *Pazhamozhi Nanooru* (Four Hundred Proverbs) opens with a beautiful evocation of how King Munrurai worshipped the feet of the Lord who resides in the shade of the Ashoka tree (*pindiyin neezhal peruman adi vanangki*) before composing the work.

Interestingly enough, though worship of god is considered one of the six sacred duties,⁴ none of the ethical volumes authored by Jain ascetics call upon the reader to spend his time exclusively in worship. All the same, prayers and worship were apparently taken for granted in the everyday timetable and hence we have some very fine devotional poetry in Jain literature. The great epic poem, *Silappadhikaram* written by the Jain ascetic, Prince Ilango, has a fine description of a Jain place of worship. Not stark and forbidding, these places were full of gracious art, inspiring one to sing with bhakti:

They (Kovalan and Kannaki) circumambulated the radiant moonstone-slab installed by Jain householders under the cool shade of the golden-flowered Ashoka tree in the belief that Charanas, the celestial Jain saints, would visit it during the sacred-bath festival and the car festival. The stone had been installed at the convergence of the paths of the five categories: of Jain Holies, where used to gather religious elders who had abjured meat, taken the vow of truth, given up evil qualities, imbibed wisdom, controlled their senses and realised the ultimate truth.⁵

An important character in the epic is the nun Kavundi, who guides the hero and the heroine in their journey from Puhar to Madurai. The unblemished nun carrying the *uri* (a netted bag for carrying food), begging bowl and bunch of peacock feathers meets the Charana who prays to God. It is a picture we recall often with reverence, the saint praying while Kavundi and the young couple listen:

God is All-Knowing, the embodiment of Dharma; he transcends the limited

understanding of living beings; He is friend to all creatures; He has triumphed over the eight-fold actions; He is the Achiever, the Great One, the root of all Dharma, the Absolute Truth, the Pure, the Ancient, the Wise, the conqueror of anger, the foremost Deva, the Lord of ultimate deliverance, the Supreme Being, the Virtue Incarnate; He lights up the higher world...⁶

Like the devotees in other faiths, Kavundi dedicates her ears, tongue, eyes, her whole body to the Arhat: "My head will not wear any ornament other than the lotus feet of the Lord who walked over flowers."

After *Silappadhikaram*, we have *Jeevaka Chintamani*, a Jain epic written by Tholamozhi Dhevar. It may have been composed around the 7th century when the Vaishnava and Saiva singers were already electrifying the countryside. Revered as a scripture by Tamil Jains, the epic is about the life of Jeevakan, a heroic prince who ultimately takes to renunciation. The hero's firm adherence to the vow of ahimsa is underlined when he takes pity on a critically injured dog and recites the Pancha Maha Mantra in its ears. The dog dies in peace while the bright celestial Sudanchanan gets released from its body.

Jeevakan the self-lost devotee can be seen in the 'Canto of Padumai'. He prays to Mahavira in a temple at Aranapadam:

You gifted the Scripture to us. You stood in a rain of flowers. You have realised the Righteous path. You are the God of true wisdom. You are the leader to whom we pray. Destroy the shackles of desire That bind us to endless lives. You have destroyed the cycle of birth. You are indeed the abode of joy. For you have rejected the very heavens. You have assumed the Lordship Of all nature on earth. O great one who stays in bliss In this temple of golden fort! Show us the way to life eternal To escape the seas of desire.

The last canto is about Jeevakan's various penances like the 'pratima yoga'. He overcomes the evil forces that attack him when he sits in yoga, defeats the 'gatiya' and the 'agatiya' karmas, and remains liberated, speaking to others in scriptural accents. The Siddha Jeevakan's words are nectarean to the listeners; and though no

more a king, he continues to guard the world by the power of his tapasya and himself remains in the Bliss of Realisation.

Obviously, this spartan approach of the Jain religion had to give way to the progress of the Vedic religions led by the Alwars and Nayanmars. The Jain scholars began to write colourful narratives in the place of didactic works. It is quite possible that a good deal of Jain bhakti literature of these centuries was destroyed due to misplaced religious fervour. Among the longer narratives that escaped the fury of the times are Neelakesi, Merumandara Puranam, Yasodhara Kaviyam and Choolamani. All of them seem to have been composed between the 9th century and the 14th. The long-winded story-telling in these poems need not detain us. But the prayers found in them are witness to the definite Jain presence in India's bhakti movement. Neelakesi is, of course, more of an anti-Buddhist tract. Merumandara Puranam is about two assistants of the thirteenth Tirthankara, Vimala. This narrative in thirteen Sargas about the princes Meru and Mandara is attributed to Mallisena Vamana (14th century) who lived in Kanchipuram. Generally speaking, in the absence of a creator God, the religious background for these poems comes from the worship of the Pure, Realised Souls recorded in the salutation to the Five Great (Pancha Parameshti): Siddhas, Arhats, Acharyas, teachers and monks.

Yasodhara Kaviyam has a memorable prayer to the Five Great uttered by the twins Abhayaruchi and Abhayamati:

Granting firmness of thought to lives, Spreading divinity on earth, destroying rebirth, Revealing the Six that leads to Realisation, He gives us the Three Gems of Pure Knowledge. He is our sole Refuge.⁷

Choolamani retells the story of the eleventh Tirthankara, Sreyamsaswami, from the Jain scripture *Sri Purana*. The epic has a 'Sarga of Renunciation' which has a detailed description of a Jaina temple where King Bayapati conducts the worship with scents, flowers and pure water. He circumambulates the sanctum and recites a tenverse prayer to the Arhat. Such temples were obviously innumerable in those times. Even now we have intact two temples of Jain Tirthankars built in the 9th century in Tiruparuththikunram near Kanchipuram. One is a temple to the eighth Tirthankara Chandra Prabha. The other temple has Mahavira's image in the sanctum. The temple has carvings that are literally breathtaking and paintings too. A strongroom reveals several ancient images of Arhats made of marble or bronze as also gods and goddesses in Jain theology. The temple has huge spaces and a shrine nearby has the Arhat Pushpadanta installed in its sanctum. Going around the temple one may well visualise King Bayapati's reverence as he intoned the prayer:

You have spread as light, this earth; The earth is enveloped in your light. Your reign brings grace to living beings; Even the world of gods seeks thy feet; You have explained the eternal Truth; Truth blossomed forth according to your Will. Recognising the glory of thy feet is Truth. Once this is known, all else becomes clear.⁸

It is significant that unlike the earlier prayers, the *Choolamani* verses use a good deal of Vedic concepts like the Lord with lotus eyes and the image of Lakshmi on the Lord's chest. Of course, the commentator explains the "Sri on the Lord's chest" as the Arhat who is ever accompanied by Kevaliya jnana. The colourful hymnology of the Alwars (recording the various incarnations of Vishnu) and the Nayanmars (the never-failing charm of the Dance of Shiva) may have been instrumental in adding such colour to the Jain texts. In any case, from the 10th century onwards Jain hymnology fell in pace with the Bhakti Movement and we have works like *Tirunootrandadi*, *Tirukalambakam* and even a *Tiruvempavai*, all of them typical of the Bhakti Age.

Tirunootrandadi is the work of Avirodhi Nathar. Hagiology speaks of him as a Vaishnava who lived near a temple in Mylapore that enshrined Nemichandraswami, the twenty-second Tirthankara.⁹ He was drawn to the teachings propounded in the temple by Jain scholars. Once he happened to ask a scholar about the inner significance of a Sanskrit verse from *Sarvartha Siddhi*. The scholar expressed his inability to convey the hidden meanings to a non-Jain. Promptly Avirodhi Nathar accepted the Jain religion, circumambulated the temple and composed one hundred verses in praise of the Lord. The scholar was pleased and fulfilled the poet's wish. A favourite with the Tamils who follow Jainism, the verses of *Tirunootrandadi* have a rare sweetness of utterance:

He receives flowers and grants The golden world; taking to himself The sublime poesy of devotees He grants realisation; he resides In the shade of the Ashoka tree Where nest sweet-voiced nightingales; My heart is mad after praising His glory As raindrops from the dark clouds above.

Udisi Devar's *Tirukkalampakam* is an amazing attempt to take in the whole of the religious symbols of his time and make them all represent the Arhat. He is Shiva, Brahma, Muruga, the Lord who rested in the midst of the milky ocean, and even

Shakti. Towards the end, Udisi Devar speaks in a voice which must have gone down well with the devotees, for already the Jain pantheon had a vast array of gods and goddesses:

Praising the beloved of the Lord, The mother who gave birth to this earth, Eternal Virgin, the goddess who sustained Dharma; from her have blossomed forth The six religions; the Self-create; The One lamp illumining creation; One who is an enemy to the disease of our birth; The divine foster-mother who gives unstintingly Her compassion to all living beings; The chaste one who speaks in sublime accents; A creeper of ananda; a flame of Wisdom; The medicine that cures the fever of the senses. Thus do the tapasvins praise, when they worship The auspicious feet of the Arhat.

The one hundred and eighty couplets of *Arunkala Cheppu* (Box of Rare Jewels) deal with the Jain way of Dharmic life. The author calls upon the devotees to worship God without fail and with an aspiring heart. *Aranericharam* by Munaipadiyar also speaks of the importance of leading a blameless life and has a verse (225) which seeks to clear the confusion in the mind of the common man regarding the various religions:

Do not worry that He is this person, or that. Meditate upon Shiva. The god Shiva And the Lord with the triple umbrella Beneath the shade of the Ashoka tree Are both the same.

There is then the prayer to the image of the Arhat consecrated at Tiruparuththikunram from *Tottira Tirattu* (Anthology of Prayers):

> As the immortals ruling over the skies, As the sub-humans in charge of the nether worlds, As humans who enter the prison of the womb, As animals and as ever so many forms Have I taken birth for a long, long time And suffered; I have now reached your temple Auspicious, hoping to be rid of this cycle of birth.

O Mountain of molten gold At holy Tiruparuththikunram near Kanchi!

The Tamil ethos enveloped Jainism in its spaces so well that the hymnologists annulled the distance between the devotee and the Arhat who is ever on a high pedestal of moral and spiritual glory. The childhood, boyhood and youth of the Arhat were fondly recalled through the *Pillai-t-Tamil* genre, unique to Tamil literature. The *Adinathar Pillai-t-Tamil* (15th century) speaks of the early life of Vrishabhadeva, the first Tirthankara. He is of the Ikshvaku clan and is hailed for propagating the Ahimsa dharma. After invoking the guardianship of the Siddhas to safeguard the child, we look upon the child Vrishabhadeva crawling (*sengeerai*); he is placed in the cradle and a lullaby is sung (*taala*); he kisses his mother fondly (*mutham*); he claps his palms in joy (*sappani*); he is invited to take a walk (*varugai*); the moon is invited to play with the child (*ambuli*); he strikes a tiny drum (*siru parai*); he builds sand castles (*sitril*); and he drags a tiny chariot (*siru ther*). Throughout the poem images come from the Vedic religions and Vrishabhadeva is referred to as "one with a thousand names". It is Vrishabhadeva who has manifested as all that we know, and so he is Adinatha (the first), says the poet in a crystalline address:

You are the alpha of studies; The Dharmic Lord, the true Supreme; Yours the kingdom of Vishnu, Yours the kingdom of Shiva, You manifested on the lotus. Coming as daylight, you remove karma And expound the scriptures; You have destroyed the evil of birth; You are auspicious; incarnate patience, One to whom prayers are addressed. You are the Lord of earth, you set down The Law of Manu and spoke the four Vedas. You have accepted the worship of the devas. Your feet exude the scent of lotuses. You are the illumination of Ananda. One who resides in the spired temple In the city of Vinita!¹⁰ Drag the tiny chariot. Lord of three worlds! O little babe Who is the image of true wisdom! Drag the tiny chariot!¹¹

(To be continued)

PREMA NANDAKUMAR

MOTHER INDIA, APRIL 2006

Notes and References

1. The Synthesis of Yoga, Part Three, Chapter 1.

2. Translated by K. R. Srinivasa Iyengar.

3. All translations from Tamil works are by Prema Nandakumar, unless otherwise stated.

4. The six sacred duties of the householder are: worshipping god, worshipping the teacher, reading scriptures, self-control, tapasya and charity.

5. Puhar Canto, 10. Translated by S. Krishnamoorthy.

6. *Ibid*.

7. Sarga One, verse 47.

The six: Understanding the nature of permanence, impermanence, the Unspoken, part, whole and Sunya. Three Gems: Right Attitude, Right Knowledge and Right Conduct.

8. Sarga Eleven, verse 66.

9. Avirodhin Nathar refers to the Mylapore temple in his poem. Since the Neminatha temple was destroyed by a Tsunami in the 17th century (when the idol of Nemichandraswami was removed to a math in Sitramur), it is clear the poet lived around the 14th century.

10. Another name for Ayodhya, the capital city of the Ikshvaku dynasty.

11. Verse 91.

TAT TWAM ASI

"Tat twam asi, thou art That", said the Sage. I marvelled at his words. Benighted, poor, Powerless man that I am, always at Death's door; Slave of circumstance, and the element's rage— How can I be God? The deathless, decayless God Whom neither Space nor ruthless Time can bind, Whose source and end the Immortals cannot find Who pervades all, yet makes the heart His abode?

His vast gaze fixed on me: "Yes, That thou art!" At once through my veins streamed a soothing fire, A luminous peace flooded my being entire, An unbroken silence settled in my heart.

A flash! And I saw God becoming me: I knew for certain now that I was He.

ANIRUDDHA SIRCAR

TEHMI AS A STUDENT—SOME LETTERS

TEHMI received high praise throughout her academic career. Here are some special letters from her teachers in the early days of her High School and then her College studies.

(1)

The Queen Mary High School, Girgaum, Bombay

30.5.40

I have great pleasure in testifying to the excellence of Miss Tehmi Masalawala's work and character. She was a pupil of this school and was always the most excellent worker and the most able and brilliant pupil. Her work showed a promise which has since been fulfilled.

She has an insight into the literary and philosophical authors of all times, her clear and deep thinking, her powers of criticism and appreciation, her power to estimate and apply the thoughts of others are quite unique and outstanding in one so young. She is a real student and has read widely and wisely. Her English style and powers of expression are excellent, and her manner in conversation is pleasing and quite certainly stimulating to students.

She is most conscientious and hard-working and deserves a post where her great ability would be required and appreciated.

I consider any college or school which has Miss Masalawala's service would be extremely fortunate.

I have followed her career with great interest as she was quite the most brilliant pupil I have ever had to instruct.

She has still far to go, as her open mind and her love of truth and of study for its own sake will lead her on.

She is not likely to be satisfied with a low standard of cram or repetition work but will do much to stimulate thought and search for truth.

Miss Masalawala is a delightful companion, good-natured, willing and dutiful.

Phyllis S. Harley M.A. Oxon Principal

(2)

St. Xavier's College Cruickshank Road Вомвау 1. British India

3. V. 40

As her Professor of English from Intermediate Arts (1934) to M.A. (1938), I may state that Miss T. S. Masalawala was one of the best students I have had. She passed the B.A. examination with first class honours in French and the M.A. in the first division with English as her principal subject. Her character was excellent throughout.

[*Signature not clear*] M.A., L.L.B., Professor of English

(3)

Armando Menezes Karnatak College Dharwar

9-6-40

I have known Miss Tehmi Masalawala for quite a long time, and I have no hesitation in saying she is one of the most brilliant students I have ever met, and that in a College where there is no dearth of brilliant students.

Besides being a profound and sensitive English scholar, she was known to be a sound scholar in Logic, and she inevitably went on, after a First Class in English at the M.A.—a rare distinction indeed—to take up Philosophy for the Ph.D.

She is also an excellent writer, full of originality.

Armando Menezes

St. Xavier's College Cruickshank Road Bombay 1, British India

1st June 1940

Miss Tehmi S. Masalawala joined this College in 1933 and was a student throughout her College career. She passed the First Year Arts Certificate Examination in 1934, securing a First Class and standing First among the students of her class. She secured a First Class at the Intermediate Arts Examination of the Bombay University in 1935 and graduated in 1937 with English and French Honours, securing a First Class. Finally, she took her M.A. Degree in 1939 with English Principal and French Subordinate and passed with First Class marks.

She was the holder of Scholarships both of the College and of the University, throughout her career, and was appointed a Fellow of the College for two years.

During her career here, she proved to be a diligent and well-mannered young lady of irreproachable character.

G. Palacios, S.J., Ph.D., D.D., Ph.D. (Columbia) Principal

(5)

St. Xavier's College Cruickshank Road Bombay 1. British India

9th July, 1940

Miss Tehmi Masalawala joined this College in 1933. She passed her Intermediate Arts Examination in 1935 being one of the only three First Classes of that year; she passed her B.A. in 1937 with French as her Honours subject and English as her Subsidiary subject; again she secured a First Class. She went up for her M.A. with English as Principal and French as Subsidiary in 1939 and had the distinction of securing a First Class in English—a rare thing at the M.A. of the Bombay University. I have known Miss Masalawala intimately throughout her academic career. She is not only a brilliant student, she is also a well-mannered, modest, sociable and irreproachable young Parsi Lady.

(Rev. J. Dühr, S.J.) Professor

* * *

Tehmi-ben was adored by many of her students who often told me that their entire understanding of English literature was a result of their classes with her. Her greatest literary treasure was Sri Aurobindo's *magnum opus*, *Savitri*. The *Savitri* copies and notebooks of her students are filled with cross references to Vedic and Upanishadic symbolism, Christian theology, and "Overhead" resonances from other poets. Her own copy, with all her notes in pencil, has such a wealth of information that it will be a work for scholars to study for years to come. It has been carefully preserved by the Ashram Archives department and will be scanned and computer-enhanced to improve readability.

We covered centuries of English literature together and I was able to encourage her to give wonderful capsule observations of poets and writers, to share her most beloved poems and her insights and references to lines in *Savitri* which her encyclopaedic knowledge could call up in a moment and show touches of similar inspiration in examples of other poets. A small group formed during the last two years, gathering around her to read *Savitri*. She said she no longer had enough breath to read but we were able to tape-record a minute or two of her reading some lines.

NARAD (RICHARD EGGENBERGER)



LET ME SPEAK TO YOU ALONE

Let me speak to You alone In the silence of this night. Let my mind not veer to this or t'other, Lest Your peace take startled flight. In the hush of gentle dawn Let no word-thought interfere With Your touch O lovely Usha That perfumes our atmosphere.

In the heat of noonday's mounting pressure, Like a lake of crystal water, Guard the stillness of this treasure, Lave the convolutions of the brain, All the poisons from it drain.

When my converse starts with you A pinioned angel Starts to stir and frees a wing. Then at last begins my heart softly to sing. When I speak to You alone I no longer need to think. And when alone to You I turn answers slip into my soul Rhymes and rhythms into my ink. When there is nothing more of mine Your star within begins to shine. So take away this tongue I beg And make me deaf and dumb and blind To all but You. Only then will falsehood's discords finally unwind To let the words upon my tongue, Each thing and everyone ring true.

THE PROMISE OF THE FUTURE*

THE theme of this conference is the promise of the future; so let us start with a namaskar from the present to the future.

When this conference was formulated in the mind of Richard Carlson, he had certain pressing objectives in mind. And we started an e-mail forum to discuss some of these; and at this conference it is hoped that some of these objectives, issues, debates will come to surface in the minds of all the people here, and we take back with us something that fertilises our lives and our sadhana, our yoga, our engagement with the world, our orientation towards the future.

In her prayer dated September 25, 1914 the Mother had written, addressing the Divine Mother,

The Lord has willed and Thou dost execute: A new Light shall break upon the earth. A new world shall be born, And the things that were promised shall be fulfilled.

In the *Bulletin* of April, 1956, the Mother reiterated her declaration in a new form. In her message she said,

Lord, Thou hast willed and I execute, A new light breaks upon the earth, A new world is born. The things that were promised are fulfilled.

Of course the Mother was referring to the event that occurred on the 29th of February, 1956, an occult event that she called "the manifestation of the supramental on Earth." What are we to make of this statement, this promise that "has been fulfilled"? And what are we to make of the meaning of the future that we all strive to gain some sort of insight into, some kind of orientation towards, in the light of the Mother's statement?

Some people asked the Mother, "What were the promises that were fulfilled?" And she said, "Don't you know? All traditions have spoken about this. This is the hope, the aspiration, the dream of humanity that there will come a time when perfection will be achieved on earth." Yes indeed, many traditions have spoken about this. Buddhism waits for the coming of Maitreya, the future Buddha who will create a perfect world. St. John's gospel predicts the arrival of the perfect Kingdom of Heaven on Earth. And the initiates, the faithful, the followers believe that by following, by being faithful, by being initiated, they are somehow privy to this coming, that it will come

^{*} A Talk at the All U.S.A. Meet (AUM) 2005.

of its own. That it will come, and they will be there in the Ark, the ship that will suddenly one day alight upon the other shore, and the world will be perfect for them.

In Religious Studies departments throughout the United States of America, they have coined a term for this: it is called Millenarianism. It means 'waiting for the Divine Millennium', whichever Millennium it may be. [*Laughter*] Some turning of an age that will suddenly part the curtains, and the future will spill into our lives. But do we have any place for consciousness in this? Is it just a waiting of the faithful? Or is there something to be done, something to prepare? Today in America, there is a growing New Age Movement. The New Age Movement believes that we have moved into a new age, the Age of Aquarius. Everything is changing, the Spirit is close to us, and all we have to do is in some ways to tailor the surface of our lives, become vegetarians, do yoga of the physical kind, have a smattering of ecological discourse in our everyday lives, and we will be part of the New Age. A day has arrived in the calendar that marks the astrological shift called the Age of Aquarius.

Are we to be satisfied with this? Are the promises that are fulfilled an astrologism? Is it just the turning of the page of some calendar? Or is the future, which is in some sense the present, now, today, to be experienced in consciousness as a presentfuture? And what does that mean? These are some of the questions I hope we carry with us, that can be stimulated by this conference, and that we really internalise not only in our minds, but in our feelings, in our will, and in our actions.

When we come into this world, we are already on a number of trajectories. There are a number of clocks that are ticking as soon as we arrive. These are not just individual, subjective clocks. These are given clocks, clocks that expand to include the world. And in some sense, when we talk of the future, all over the world today, we are talking of a single calendar, which we use in our home, our offices. It is the calendar of what is called "the Common Era". The Common Era, it's a new name, to disguise the earlier name [*laughter*] which pins its origin at the birth of Christ. Today we don't want to call it that because this calendar has spilled its religious intent, and in any case the religious intent was not the real intent, it was another intent. The religious intent was a convenience for a secular intent. But it is a single clock, a clock, wherever it ticks from, that includes us all. And this clock is another ship that is taking us to a certain destination. What is happening in the captain's cabin is not so easy to know, perhaps an occult hijacking is in process. And that change, or that determination of the movement of the ship, is also something that I hope we will bring into our thoughts, understandings, and our actions.

The Common Era is a term that makes sense today, in a global age, all over the world, because of a process that has been named in various ways by various thinkers, but one particular German thinker, Heidegger, has given it a very appropriate name. He has called it "the Europeanisation of the world". Today, maybe it's a little anachronistic to talk of Europeanisation, but nevertheless, this is where this movement begins. The time period of its beginning is hazy; it is sometime in the 16th or 17th

century, and it begins with a change of faith. It is not a loss of faith, as people usually believe, it is a change of faith. There is a shift from what are known as the Middle Ages in Europe, the ages of darkness and superstition, but at the same time of belief and faith, to an age which turns from the notion of a transcendental God determining our lives through its elect church, to a notion of a direct contact with some principle that from then on is assumed to be the goal of our endeavours-and this principle is "Reason". The change in faith occurs because it is suddenly realised that there is no need to turn to some kind of a priesthood to interpret the word of God, because the word of God is everywhere around us. It is in Nature, it is in our lives, it is around us, it is in the stars, it is a patterning, it is an order, it is a causation that has intelligence in it. The intuition of an intelligent universe marks the shift in the age of the Common Era. The world has Reason. But the shift from that understanding to the hubris of Man, who believes that with his Reason he can match the Reason of God, that in some sense we can use our minds, our intelligence, to become equal to the intelligence that is distributed so perfectly around us, is the beginning of what is called the Enlightenment. It is not a conspiracy, it is not a school of the elect who begin this process of thinking, it is a variety of thinkers, a variety of approaches. But perhaps from our point of view, looking back, it is a conspiracy. It is an occult conspiracy. It is the spirit of the Age, the Zeitgeist, that chooses to bring about a change in Time, and a change in our relationship with experience, a change in our fundamental experience. It launches us into a new world. It launches us into the world in which we are today, a world that continues to be with us and is taking us towards its own future. It is the most obvious future that people all over the world are faced with.

It begins with the glorious, noble idea of Omniscience-man will know all things by engaging with knowledge everywhere, using his mind. And in this process, there is an immediate division between Man and his world. I use the word "Man" advisedly, because who is the subject of this investigation becomes one of the major debates that has pursued us through all these centuries. And to start with, it is the Western, White Man who is the subject of this objectification of the world, of this turning of the world into a object of study, of investigation, of the yielding up of the reason of its existence. And somehow, though made in the name of humanity everywhere and for all time, made in the name of a knowledge that will enlighten us, a reason that will liberate us, because, once we know fully we will be free, it has yet persisted through all these centuries in maintaining its stance, its question, on "Who is that Man, for whom, in whose name this inquiry is conducted?" Somehow the voyages of discovery, the movements all over the world, have been done in the name of Science, because Western White Man has brought his civilisation to the hapless peoples, yellow, brown, and black [and red!], who somehow are less human than the subject of this inquiry—brought a civilisation, and has felt justified in exploiting, using, treating as fodder, treating as conditionable, these other peoples of the world.

This movement very soon shows its other face, that indeed, it is not a Will-to-

Knowledge, but a Will-to-Power that drives the Will-to-Knowledge. A Will-to-Power that is less noble than what it makes itself to be, that turns itself on the world, exploits its resources, turns itself on the peoples of the world, and wherever it finds weakness, exploits it, in the name of Science. So perhaps Omnipotence, rather than Omniscience, is the watchword of this creed, a kind of coming to absolute power. A variety of critiques have been launched against this, but this is the world that persists, its machinery becoming ubiquitous and more and more invisible with time. Its markets spread all over the world, homogenising everybody, everything, creating desirebecause indeed, to persist in its trajectory, to create surplus, to create markets where that surplus can be off-loaded, to draw on people who will willingly give their bodies, minds, feelings, lives to its purpose, it needs to create desire. The production of desire in the modern world, is indeed one of the primary machineries of this trajectory in which we find ourselves from our birth, which is leading in a certain directionwhich had foreseen, many, many centuries before, the globalisation of the world, the unification of the world, the homogenisation of the world, and the bringing of Reason to all human beings.

But this Reason, where does it reside? Have we arrived at Omniscience, have we arrived at Omnipotence, or is there someone, anyone, any human being who has arrived at these things? Who is the Subject of this? Is there any individual that can claim to be the possessor of these gains, today, in this late stage of the Enlightenment's trajectory? Or are these gains in some way resident in some occult power that has become materialised, that in some sense has become pure Machinery, pure Circulation, to which people, whatever position they may occupy, wherever they may be, are both subject and object, objects of its will, created in its shapes, bound by its laws, forced by its hand?

Is this the future, or is there another future, another future that coexists with this? There has been a sudden multitude of voices which come to us from the mid-20th century, that hold out a hopeful view of the globalisation of the world, of the unifying technologies, of the sudden spurt of integration of our technological world, which is beyond our control, that is leading us. Is it perhaps that we have been opened up, willy-nilly, to experiences that would not be possible to us, that even as we suffer the standardisation of the Enlightenment, what opens up in us is a new consciousness, a new spirituality. A new spirituality which is a new materiality, an intuition of the Spirit in Matter, of united, or unified, Matter? Is it possible that certain experiences are being prepared in us, even as we are ploughed under by the machines that are preparing this global age? This is a question to ask, a question that I hope will pursue us, follow us, through this conference and beyond it.

I draw attention to the fact that the Mother was keenly aware of the possible misconstruction of her Promise, of the "things that were promised that are [now] fulfilled." She tells us time and again, "This is not the time for rest and complacency, this is the time to be heroic." We are not called to be the initiates of an order for

whom fulfilment will come just by dint of the fact of being initiates. In 1971, the Mother gave a New Year message. She said: "Blessed are those who take a leap towards the Future." Again the question arises, what is this Future? This is, among the other late messages of the Mother, a very enigmatic message. What is the Future, what is the blessing, and what is the leap?

This future can be named by us, but named only through the vocabulary of Sri Aurobindo, taken from the dictionary of Sri Aurobindo. We can call this future "the Life Divine". Or the Divine Life, if you would have it simply, without Sri Aurobindo's inversion. But what is the Divine Life? Again, using his terminology, we can call it "an integrality of being and experience". And this is not an individual integrality, it is a total integrality, an integrality which is global, and therefore takes in its scope the integral body of humanity. The Divine Life is not led by one human being, the Divine Life is a collective context. What are the conditions that make this collective context possible? Is it an unquestioning acceptance of what happens around us, what we find ourselves in, what determines our world for us? Or is it an openness to the world that we are being called upon to create, to co-create? Because it is already here among us. Is it an invitation, an invitation to understand and to participate?

What is the Blessing? Is it perhaps the Mother's way of saying that it is easy to conform, it is easy to be one with whatever choices are given to us by that which is creating us, determining us. However if we choose to open ourselves, not merely in essence, but in nature, not only in nature, but in action, to open those parts of our Will, of our destiny, to a higher truth, a greater law of world-becoming, then maybe her Blessing is with us? Maybe that difficult enterprise, that seems so impossible, of going against the grain of the prevalent forces that structure the world, has been given that special sanction, guidance and Grace? How can we know, if we haven't even tried?

It is that which we need to bring into the Yoga. Sri Aurobindo and the Mother have given us two collective contexts. They have given us Pondicherry, the Ashram, and they have given us Auroville. These are collective contexts for the carrying out of the Integral Yoga, social contexts. They are not immune to technology; in fact technology is fully represented there. They are as much a part of this global world as New York, Los Angeles, or Tokyo. But they offer different conditions for the flowering of technology. And it is perhaps these different conditions that open up for us those different experiences—experiences of the Spirit in Matter, of the Oneness that is organising matter today, as a form of consciousness. What are those conditions and how do they differ internally and externally, psychologically and materially from the conditions of our modern cities? Can we make those conditions possible in our lives? Can we take the steps towards that? To answer that question, we have to first ask the question—Do we feel the imperative for that? Do we feel the danger of its opposite? Has our aspiration made itself detailed enough? Has it included in itself enough of the integrality of being? Or is our aspiration partial, does it stop somewhere, where it believes, "This is the inward life, and that is all that's needed?"

And finally, to ask the question about the "leap"—"Blessed are those who take a leap towards the Future". What is that leap? What does it imply? What gives us the motor power to achieve it? And where does it lead us? The first thing to realise in Mother's statement is a fundamental sense of the word "future" that is directed toward the idea of the leap. The "future" is a discontinuity from the present, the future is not the present extending itself. The future is not the Enlightenment that knows from the very beginning what it will achieve, even though its effects are unpredictable. Just as Life appeared in Matter, Mind appeared in Life, and at each stage there was a discontinuity in consciousness—we still carry in ourselves the scar, the mark, of that discontinuity—our lack of integration is the mark of that discontinuity, so too, a discontinuity faces us today, the discontinuity of the future. In a radical sense, the future is not co-extensive with the present; and the only attitude we can have towards the future is a radical openness to the Transcendent.

Our aspiration proceeds from the present. What returns to it from above is an increasingly, progressively clarifying vision and an integration of our own aspiration. The aspiration clarifies, it becomes more detailed, it knows what it's about. There is a progress to aspiration. But there is another side—as the engine of aspiration and Grace propels us forward, there is required in us one other necessary component—and that is the surrender to the future, the receptivity to that which has not come into being, that which invites us. And to remember at all times that we are not the creators of this future but that the future is creating us in its image. "An eternal Perfection is moulding us into its own image"—Sri Aurobindo's words. But until we can aspire for that and hold that openness to the radically Other, to the Transcendent, we cannot reach there, that Day will not dawn on us, the present will always remain present and the future, which is already here, the promise which is already fulfilled—that the Mother has given us—will remain beckoning without our participation. I hope this forms the scope of some of the ideas which we take up in this AUM and with that I will take your leave.

DEBASHISH BANERJEE

The message of the East to the West is a true message, "Only by finding himself can man be saved," and "what shall it profit a man though he gain the whole world, if he lose his own soul?" The West has heard the message and is seeking out the law and truth of the soul and the evidences of an inner reality greater than the material.

Sri Aurobindo

(Essays in Philosophy and Yoga, CWSA, Vol. 13, p. 144)

PANCHASSEE-MOUNTAIN

(Continued from the issue of March 2006)

(A Travelogue and an Exploration: Can this Mountain, meaning "Five Seats of the Divine Mother", be an indication of a living Vedic culture?)

(4) The Vedic symbol "seats" ... Climbing Panchassee

Whoever thus aspires, labours, battles, travels, ascends the hill of being is the Aryan (ārya, arya, ari with the various senses, to toil, to fight, to climb or rise, to travel, to prepare the sacrifice); for the work of the Aryan is a sacrifice which is at once a battle and an ascent and a journey, a battle against the powers of darkness, an ascent to the highest peaks of the mountain beyond earth and heaven...

All this action and struggle and ascension is supported by Heaven our Father and Earth our Mother.... Vayu, Master of life links them together by the midair, the region of vital force.

*

(Sri Aurobindo, The Secret of the Veda)

I suppose that in the Vedic Age, mountain life was not very different from the physical requirements that still exist in the Himalayan regions. It is the sort of life that places demands upon everyone and requires a strong flow of life-energy. In winter one can have a week of snow before it happily melts in the crystal clear mountain sunlight; in spring hail is a constant threat with stones large enough to kill. In summer the heaviest monsoon rains of Nepal fall, bringing with it an incredible experience especially of leeches that carpet the jungle. Himalayan village life brings a daily physical challenge on a 60° slope, where climbing is constant. And so it is natural that their daily experience of climbing and walking on the Panchassee mountainside, or "travelling on the path", remains a Vedic symbol inside this mountain culture in which the physical consciousness is an expression of a divine Mother.

It requires half-a-day's climb from any of the surrounding villages to reach the Panchassee summits. Eventually our attention finds its way to the breathing process. In fact after climbing up any of Her many trails, often it is only the breath that remains in the consciousness, so steep are the trails and the demands of approaching Her.

In modern Nepal many nature treks are presented in a tourist format, whereas most of them are in fact ancient pilgrimage routes. It is the incredible things we experience in Nature that still capture us today in the same way they did during the Vedic Age. Perhaps five thousand years ago also people climbed these mountains and rafted the mighty Himalayan rivers as an integral part of ancient pilgrimages: there is still no alternative to climbing in order to reach the Panchassee summit. Today, from Nepali village inn to village inn, we can still experience a time of living with Vedic symbols.

And bright red: the local women dress in an outrageous red-brightness that is quite unique from the perspective of modern fashion. In my pastel-western background we are taught not to be bright-of-colour in dress, exactly the opposite to the brilliant reds that are here the symbol of a Himalayan culture of the divine feminine.

From Gatee-cheena there are three very different paths to Panchassee, climbing up three completely different ridges with different village settings. And it is a wonderful experience in bright sunshine on any of the trails. Getting down from the bus we immediately cross a recently cast-in-concrete archway over a very clear waterway. With no side railings we do not dare look at the clear and clean and glowing streamwater, or even think about how the name of the village, in translation, also describes the Panchassee streams that meet as sparkling necklaces of Light around Her neck. From here it is a four-hour climb to the pilgrim-crossroads point of Panchassee village.

This climb eventually produces a very deep breathing of the sort we do not experience normally. In the Himalayas the breaths are slow, long, and deeply demanding, so much so that upon reaching the village we can observe a noticeable change in the nerves and mind and body.

It was probably in the Vedic Age that this breathing activity was first developed into a Yoga system, and the breath assumed a divine symbolism. In the Vedic translations by Sri Aurobindo, there is a hymn in which Matarishwan is described as *"churning the breaths"* in a process that brings into manifestation the Mystic Flame.

When Matarishwan the Breath borne variously within us churned him into being, the Lord of Fire became the white and blissful one in every house. Man was a seer and kindler of the divine Fire and he dwelt with him like a companion and sent him on his messages like an envoy to a powerful king.

(Sri Aurobindo, Hymns to the Mystic Fire)

Perhaps this is how a pilgrim-visit to a Himalayan Mountain-mother can be associated with a Vedic yoga-process of the Breath, mentioned in Sri Aurobindo's translation.

As we continue the climb higher and higher out of the Fewa Lake valley on the ancient trails to the sacred Panchassee peaks, the view opens out more and more. As the view grows larger and larger I also feel the need to grow psychologically larger and larger.

During the first hour on the rough stone steps winding upwards at 60° from where the road ends, I caught up with a group of village men climbing in front of me. The breath had already become very demanding due to the weight of the camera equipment on my back. I fell in line and naturally followed the rhythmic movement

set in place by the others. I expected that everyone was by then watching the breath, watching its in and out movement. There was one group which rested frequently, and during one of these rest periods I was invited to join the ritual they were to perform at the top of the hill. These seven local village priests were going to celebrate the rice harvest at a symbolic Tree, about an hour up where this jungle path flattens out into a ridge of terraced fields and a small village.

Any climb will eventually produce a perception in the centre of the chest where the in-breath and out-breath seem to meet. In the later yogic traditions, this energypoint is called a *chakra*: in the ancient Vedic tradition it was referred to as a "seat".

Once inside the flat stone platform around the holy Tree I was motioned to sit amid the village priests while they all performed a role in the preparations. This was a huge tree decorated with bells and ribbons and rice and bamboo shoots, with a wide leaf canopy. The Tree held in Her centre a small raised ascending stone triangle, like the Machhaputrre peak, in which tiny copper pots of holy water and other things were placed. We sat surrounded by a low stone boundary wall; outside the wall, a group was setting a very large pot of rice and milk over a wood fire. Further away in the open grassed area at the entrance to this tree-temple was an assortment of goats.

While resting and watching a very complex preparation which included the kindling of a tiny wood fire, it occurred to me that these men, like myself, I assume, did not observe the breath during the climb from the mental positioning of consciousness, but rather, as now in the ritual preparations, from a point in the vital being. In the physical experience of climbing towards Panchassee peak, we were forced by the dominating vital-energy layer of consciousness to take note of things through this layer.

That ascension has already been effected by the Ancients, the human forefathers, and the spirits of these great Ancestors still assist their offspring; for the new dawns repeat the old and lean forward in light to join the dawns of the future. (Sri Aurobindo, Hymns to the Mystic Fire)

After a ritual lighting of incense and placing of flowers around the Tree, one of the priests went into trance by slapping his shoulders with some cut bushes. From either side of his head he slapped his back and repeated some barely audible words, and soon was in trance in front of the Tree and beside the Fire.

In the physical and vital consciousness of the Panchassee culture, these ancient memories of trance are still present in the atmosphere from their millenia of practice: how else to explain this experience and culture?

After a few moments of flailing himself into trance, the priest uttered words that the other priests strained to hear. One of the elder priests appeared very calm amid this excitement of trance. With a holy palm leaf book, fingering a strand of sacred tree-seeds, he was obviously also happy with what the trance produced. Pil-
grimages on Panchassee-Mountain, of the sort that these seven village priests from surrounding villages were performing, are an integral part of the local life.

Perhaps observing the physical experience of the pilgrimage may provide a psychological framework and inner parallel for the outer experience. At the end of the trance-experience when the seven priests concluded a ritual to ensure there would be no hail on the crops that year, I left and continued up the trail towards the Panchassee summit.

Hail could represent the expression or consequences of the Dark forces as described in the Vedic hymns.

It took another three hours of climbing to reach the valley-crossroads at Panchassee Village, from where the final ascent to the summit begins. Calmed by the hours of deep breathing as the physical basis to the psychological experience, I chose to stop and rest, and was greeted by happy and smiling faces.

(To be continued)

Gary

If we look at the beginnings of Indian society, the far-off Vedic age which we no longer understand, for we have lost that mentality, we see that everything is symbolic. The religious institution of sacrifice governs the whole society and all its hours and moments, and the ritual of the sacrifice is at every turn and in every detail, as even a cursory study of the Brahmanas and Upanishads ought to show us, mystically symbolic. The theory that there was nothing in the sacrifice except a propitiation of Nature-gods for the gaining of worldly prosperity and of Paradise, is a misunderstanding by a later humanity which had already become profoundly affected by an intellectual and practical bent of mind, practical even in its religion and even in its own mysticism and symbolism, and therefore could no longer enter into the ancient spirit. Not only the actual religious worship but also the social institutions of the time were penetrated through and through with the symbolic spirit. Take the hymn of the Rig Veda which is supposed to be a marriage hymn for the union of a human couple and was certainly used as such in the later Vedic ages. Yet the whole sense of the hymn turns about the successive marriages of Suryā, daughter of the Sun, with different gods and the human marriage is quite a subordinate matter overshadowed and governed entirely by the divine and mystic figure and is spoken of in the terms of that figure.

Sri Aurobindo

(The Human Cycle, CWSA, Vol. 25, pp. 7-8)

NAVANIT STORIES

WHY IS THE BOAT NOT MOVING?

THE *tamas* of *prithvi's jada-tattva*, the torpidity of unconscious matter, still weighs down our humanity evolved on this earth. More than half of its life just slips away in sleep and inertia—and that laziness has no small a share becomes clear to anyone who looks at himself and those around. Plenty of activity and dynamism are there everywhere, evident to the most blind, true; but don't they, in actual fact, end up securing us more firmly, like the burrowing roots a tree, deeper and deeper into the sticky soil of Desire? Also, though buried deep down there, the mind of man can indeed be seen flapping its wings, sometimes. But doesn't it all too often end up being just an imaginary escape? and after its brief flutter, doesn't one's mind too, like the body, submit to or is pulled down into dull passivity?

In spite of this being the state of things there is in man's heart an upwardaspiring *tattva* which is ceaselessly pulling him upwards, keeping alive in him the will to escape from the blind clutches of *tamas* and progress at a swift pace. Man strains and struggles and strives, but fails to advance, stays rooted to the place, in spite of his aspiration and will to move ahead! And this is why, again and again, everywhere one hears the complaint:

"But my dear sir, I am making every possible effort; my soul is craving for it, there is in my heart a strong yearning to progress, even my vital is inspired; but nothing seems to be working! What shall I do?"

Whenever I have heard such despairing talk, I have recalled the following story Shivjibhai had related to me in his usual vivid manner and diction.

One bright morning a group of ten to fifteen friends set out on a pleasure trip. As their destination was on the other bank of a river, they hired a boat. They boarded it with all their picnic paraphernalia. The boatman ferried them across. Telling the boatman to leave the boat on the shore, they went to the nearby groves. There they engaged themselves in drink, song, dance and other hedonistic indulgences.

In the evening the boatman went to them and said it was time to go back. But the besotted pleasure-seekers had not had enough. They told him, "You can go now, but leave the boat here and come back in the morning." The man did as he was told.

By midnight their intoxication began to wane and gradually they awoke to the realisation that the next morning they had to report at their work-places—or else.... And immediately they started looking for the boatman, rushing around the place shouting for him, oblivious of the fact that they had themselves packed him off.

"Oh, let him go to hell! Come on, we shall row ourselves," they finally decided, and piled into the boat. Picking up the oars they began to paddle. But the boat wouldn't move forward! It swayed to and fro, turned this way and that, but kept hugging the jetty.

"Come on, come on," they encouraged each other. "Row harder; show some energy, men! At this rate, we'll never reach in time." But the boat scoffed at them, swaying and heaving, but holding on to the jetty—a huge, groaning, unyielding beast.

And thus they spent the rest of the night, reducing themselves to rags, until the sun rose and in due course the boatman turned up.

"Arre, arre, what are you all doing?" he shouted, struggling to repress his laughter.

"What do you mean by that silly question? Are you blind? Don't you see we are rowing? We have been at it for hours and hours and hours and yet this stupid boat of yours does not budge! It has practically killed us, this useless piece of wood, and you dare ask us what we are doing?"

"But my dear sirs! This 'poor stupid, useless thing' of yours has been tied to the jetty—as you yourselves asked me to do it! Why didn't you release it first, before wasting so much time and energy?"

Then, undoing the knots of the rope and freeing the boat, he sat in his place and took up his oars. A few deft strokes and the boat began to glide into the waters, an obedient happy collaborator.

Aren't the majority of us struggling to enlighten, expand, perfect our minds and hearts and bodies, these instruments of our evolution, without undoing or cutting through the powerful knots that keep us bound to the shores of the pleasure-groves of earth-life?

And those who have freed themselves of those umbilical cords and started rowing out into the flowing waters, aren't their boats moving ahead at a steady speed?

PUJALAL

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Of course, laziness is a kind of tamas, but in laziness there is an ill-will, a refusal to make an effort—while tamas is inertia: one wants to do something, but one can't.

The Mother

(Questions and Answers 1950-51, CWM, Vol. 4, pp. 365-66)

বন্দে মাতরম্। সুজলাং সুফলাং মলয়জশীতলাম্ শস্যশ্যামলাং মাতরম্। শুভ্র-জ্যোৎস্না-পুলকিত-যামিনীম্ ফুল্লকুসুমিত-দ্রুমদলশোভিনীম্, সুহাসিনীং সুমধুরভাষিণীম্, সুখদাং বরদাং মাতরম্।

> Bande Mātaram Sujalām suphalām malayajasītalām Śasyaśyāmalām mātaram. Śubhra-jyotsnā-pulakita-yāminīm Phullakusumita-drumadalaśobhinīm, Suhāsinīm sumadhurabhāṣiņīm, Sukhadām varadām mātaram.

> > With Compliments from Well-wishers