

# MOTHER INDIA

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*“Great is Truth and it shall prevail”*

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## SILENCE IS ALL

1

Silence is all, say the sages.  
Silence watches the work of the ages;  
In the book of Silence the cosmic Scribe has written his cosmic pages;  
Silence is all, say the sages.

2

What then of the word, O speaker?  
What then of the thought, O thinker?  
Thought is the wine of the soul and the word is the beaker;  
Life is the banquet-table — the soul of the sage is the drinker.

3

What of the wine, O mortal?  
I am drunk with the wine as I sit at Wisdom's portal,  
Waiting for the Light beyond thought and the Word immortal.  
Long I sit in vain at Wisdom's portal.

4

How shalt thou know the Word when it comes, O seeker?  
How shalt thou know the Light when it breaks, O witness?  
I shall hear the voice of the God within me and grow wiser and meeker;  
I shall be the tree that takes in the light as its food, I shall drink its nectar of  
sweetness.

SRI AUROBINDO

*(Collected Poems, SABCL, Vol. 5, p. 107)*

## **‘WHEN CONSCIOUSNESS FORGETS ITSELF IN THE FORM IT BECOMES THE ELECTRON, THE ATOM . . .’**

CONSCIOUSNESS is a fundamental thing, the fundamental thing in existence — it is the energy, the motion, the movement of consciousness that creates the universe and all that is in it — not only the macrocosm but the microcosm is nothing but consciousness arranging itself. For instance, when consciousness in its movement or rather a certain stress of movement forgets itself in the action it becomes an apparently “unconscious” energy; when it forgets itself in the form it becomes the electron, the atom, the material object. In reality it is still consciousness that works in the energy and determines the form and the evolution of form. When it wants to liberate itself, slowly, evolutionarily, out of Matter, but still in the form, it emerges as life, as animal, as man and it can go on evolving itself still farther out of its involution and become something more than mere man. If you can grasp that, then it ought not to be difficult to see further that it can subjectively formulate itself as a physical, a vital, a mental, a psychic consciousness — all these are present in man, but as they are all mixed up together in the external consciousness with their real status behind in the inner being, one can only become fully aware of them by releasing the original limiting stress of the consciousness which makes us live in our external being and become awake and centred within in the inner being. As the consciousness in us, by its external concentration or stress, has to put all these things behind — behind a wall or veil, it has to break down the wall or veil and get back in its stress into these inner parts of existence — that is what we call living within; then our external being seems to us something small and superficial, we are or can become aware of the large and rich and inexhaustible kingdom within. So also consciousness in us has drawn a lid or covering or whatever one likes to call it between the lower planes of mind, life, body supported by the psychic and the higher planes which contain the spiritual kingdoms where the self is always free and limitless, and it can break or open the lid or covering and ascend there and become the Self free and wide and luminous or else bring down the influence, reflection, finally even the presence and power of the higher consciousness into the lower nature.

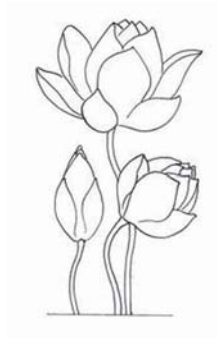
Now that is what consciousness is — it is not composed of parts, it is fundamental to being and itself formulates any parts it chooses to manifest — developing them from above downward by a progressive coming down from spiritual levels towards involution in Matter or formulating them in an upward working in the front by what we call evolution. If it chooses to work in you through the sense of ego, you think that it is the clear-cut individual “I” that does everything — if it begins to release itself from that limited working, you begin to expand your sense of “I” till it bursts into infinity and no longer exists or you shed it and flower into spiritual wideness. Of

course, this is not what is spoken of in modern materialistic thought as consciousness, because that thought is governed by science and sees consciousness only as a phenomenon that emerges out of inconscient Matter and consists of certain reactions of the system to outward things. But that is a phenomenon of consciousness, it is not consciousness itself, it is even only a very small part of the possible phenomenon of consciousness and can give no clue to Consciousness the Reality which is of the very essence of existence.

That is all at present. You will have to fix yourself in that — for it is fundamental — before it can be useful to go any further.

SRI AUROBINDO

*(Letters on Yoga, SABCL, Vol. 22, pp. 236-38)*



## ‘ . . . I ADORE THEE WITH A BOUNDLESS DEVOTION ’

**February 9, 1914**

WHATEVER names may be given to Thee, O Lord, by the élite of humanity, athirst for something absolute, it seeks ardently for Thee. Even those who seem to move farthest away from Thee, even those who are exclusively occupied with themselves, are they not searching for an absolute in sensation, an absolute in satisfaction, and in spite of its vanity that search also can some day lead to Thee; Thou art far too much at the core, at the heart of all things for even the very worst egoisms not to be transformed by Thee into aspirations . . . . The only thing we must fear and avoid is the inertia of inconscience, of blind and heavy ignorance. That state lies at the very bottom of the infinite ladder that rises towards Thee. And all Thy effort consists in pulling Matter out of this primeval darkness so as to awaken it to consciousness. Even passion is preferable to inconscience. We must therefore go constantly forward to conquer that universal bedrock of inconscience and through our own organism transform it gradually into luminous consciousness.

O Lord, sweet Master of love, Thou whom I see so living, so conscious within all things, I adore Thee with a boundless devotion.

THE MOTHER

*(Prayers and Meditations, CWM 2<sup>nd</sup> Ed., Vol. 1, p. 69)*

## MIRACLES

**84 – The supernatural is that the nature of which we have not attained or do not yet know, or the means of which we have not yet conquered. The common taste for miracles is the sign that man’s ascent is not yet finished.**

**85 – It is rationality and prudence to distrust the supernatural; but to believe in it is also a sort of wisdom.**

**86 – Great saints have performed miracles; greater saints have railed at them; the greatest have both railed at them and performed them.**

**87 – Open thy eyes and see what the world really is and what God; have done with vain and pleasant imaginations.**

*Why didn’t you or Sri Aurobindo make a greater use of miracles as a means of overcoming resistance in the external human consciousness? Why this kind of self-effacement where outer things are concerned, this non-intervention or discretion?*

As for Sri Aurobindo, I only know what he told me several times. People give the name of “miracle” only to interventions in the material or the vital world. And these interventions are always mixed with ignorant and arbitrary movements.

But the number of miracles that Sri Aurobindo performed in the mind is incalculable; but naturally you could only see it if you had a very straight, very sincere, very pure vision — a few people did see it. But he refused — this I know — he refused to perform any vital or material miracles, because of this mixture.

My experience is that in the present state of the world, a direct miracle, material or vital, must necessarily take into account a great many elements of falsehood that are unacceptable — they are necessarily miracles of falsehood. And they are unacceptable. I have seen what people call miracles; I saw many of them at one period, but this gave a right of existence to many things which to me are not acceptable. What men call “miracles” nowadays are almost always performed by vital beings or by men who are in contact with vital beings, and this is a mixture — it accepts the reality of certain things, the truth of certain things that are not true. And this is the basis on which it works. So that is unacceptable.

*I did not quite understand what you meant by saying that Sri Aurobindo performed miracles in the mind.*

I mean that he used to introduce the supramental force into the mental consciousness. Into the mental consciousness, the mental consciousness that governs all mate-

rial movements, he would introduce a supramental formation or power or force which immediately changed the organisation. This produces immediate effects which seem illogical because they do not follow the normal course of movements according to mental logic.

He himself used to say that when he was in possession of the supramental power, when he could use it at will and focus it on a specific point with a definite purpose, it was irrevocable, inevitable: the effect was absolute. That can be called a miracle.

For example, take someone who was sick or in pain; when Sri Aurobindo was in possession of this supramental power — there was a time when he said that it was completely under his control, that is, he could do what he wanted with it, he could apply it where he liked — then he would apply this Will, for example, to some disorder, either physical or vital or, of course, mental — he would apply this force of greater harmony, of greater order, this supramental force, and focus it there, and it would act immediately. And it was an order: it created an order, a harmony greater than the natural harmony. That is, if it was a case of healing, for example, the healing would be more perfect and more complete than any obtained by ordinary physical and mental methods.

There were a great many of them. But people are so blind, so embedded in their ordinary consciousness that they always give “explanations”, they can always give an explanation. Only those who have faith and aspiration and something very pure in themselves, that is, who truly want to know, they were able to perceive it.

When the Power was there, he even used to say that it was effortless; all he had to do was to apply this supramental power of order and harmony and instantly the desired result was achieved.

*What is a miracle? Because Sri Aurobindo often said that there are no miracles and, at the same time he says in Savitri, for example: “All’s miracle here and can by miracle change.”<sup>1</sup>*

That depends on how you look at it, from this side or that.

You give the name of miracle only to things which cannot be clearly explained or for which you have no mental explanation. From this point of view you can say that countless things that happen are miracles, because you cannot explain the how or the why of them.

*What would be a true miracle?*

I can’t see what a true miracle can be because, after all, what is a miracle? A true miracle . . . Only the mind has the notion of miracles; because the mind decides, by

1. *Savitri*, SABCL, Vol. 28, p. 85.

its own logic, that given this and that, another thing can or cannot be. But this represents all the limitations of the mind. Because, from the point of view of the Lord, how can there be a miracle? Everything is Himself which He objectifies.

So here we come to the great problem of the way which is being followed, the eternal way, as Sri Aurobindo explains it in *Savitri*. Of course, one can conceive that what was objectified first was something which had an inclination for objectivisation. The first thing to recognise, which seems consistent with the principle of evolution, is that the objectivisation is progressive, it is not total for all eternity . . . (*Silence*) It is very difficult to tell, because we cannot get out of our habit of conceiving that there is a definite quantity unfolding indefinitely and that there can only be a beginning if there is a definite quantity. We always have, at least in our way of speaking, the idea of a *moment (laughing)* when the Lord decides to objectify Himself. Like this, the explanation becomes easy: He objectifies Himself gradually, progressively, and this results in a progressive evolution. But that is only a manner of speaking; because there is no beginning, there is no end, and yet there is a progression. The sense of succession, the sense of evolution, the sense of progress only exists with the manifestation. It is only when one speaks of the earth that one can give an explanation that is both very rational and in accord with the facts, because the earth has a beginning, not in its soul but in its material reality.

It is also likely that a material universe has a beginning.

(*Silence*)

If you look at it this way, for a universe a miracle would be the sudden intrusion of something from another universe. And for the earth, this reduces the problem to something very understandable — a miracle is the sudden intrusion of something which did not belong to the earth: it produces a radical and immediate change by introducing a principle which did not belong to this physical world of earth.

But there again, it is said that at the very centre of each element *everything exists* in principle; so even that miracle is not possible.

One could say that the sense of miracle belongs only to a finite world, a finite consciousness, a finite conception. It is the sudden entry — the intrusion, the intervention, the penetration — without preparation, of something which did not exist in this physical world. So obviously, any manifestation of a will or a consciousness which belongs to a domain that is more infinite and more eternal than earth, is necessarily a miracle on earth. But if you leave the finite world, the understanding of the finite world, miracles do not exist. The Lord can play at miracles if it so amuses Him, but there are no miracles — He plays every possible game.

You can begin to understand Him only when you *feel* in this way, that He plays every possible game, and “possible” does not mean possible according to the human conception, but possible according to His own conception!



And there, there is no room for miracles — except that it looks like a miracle.

(*Silence*)

If, instead of a slow evolution, something belonging to the supramental world appeared suddenly, man, the mental being, could call that a miracle, because it would be the intervention of something which he does not consciously carry within himself and which intervenes in his conscious life. And in fact, if you consider this taste for miracles, which is very strong — much stronger in children and in hearts that have remained childlike than in highly mentalised individuals — it is a faith in the realisation of the aspiration for the marvellous, of something higher than anything one can expect from normal life.

Indeed, in education, both tendencies should be encouraged side by side: the tendency to thirst for the marvellous, for what seems unrealisable, for something which fills you with the feeling of divinity; while at the same time encouraging exact, correct, sincere observation in the perception of the world as it is, the suppression of all imagination, a constant control, a highly practical and meticulous sense for exact details. Both should go side by side. Usually, you kill the one with the idea that this is necessary in order to foster the other — this is completely wrong. Both can be simultaneous and there comes a time when one has enough knowledge to know that they are the two aspects of the same thing: insight, a higher discernment. But instead of a narrow, limited insight and discernment, the discernment becomes entirely sincere, correct, exact, but it is vast, it includes a whole domain that does not yet belong to the concrete manifestation.

From the point of view of education, this would be very important: to see the world as it is, exactly, unadorned, in the most down-to-earth and concrete manner; and to see the world as it can be, with the freest, highest vision, the one most full of hope and aspiration and marvellous certitude — as the two poles of discernment.

The most splendid, most marvellous, most powerful, most expressive, most total things we can imagine are nothing compared to what they can be; and at the same time our meticulous exactitude in the tiniest detail is never exact enough. And both must go together. When one knows this (*downward gesture*) and when one knows that (*upward gesture*), one is able to put the two together.

And this is the best possible use of the need for miracles. The need for miracles is a gesture of ignorance: “Oh, I would like things to be like this!” It is a gesture of ignorance and impotence. And those who say, “You live in a miracle”, know only the lower end — and even then they know it only imperfectly — and they have no contact with anything else.

This need for miracles must be changed into a conscious aspiration for something — which is already there, which exists — which will be manifested *by the help* of all these aspirations; all these aspirations are necessary or, if one looks at it in a truer

way, they are an accompaniment — an agreeable accompaniment — in the eternal unfolding.

Of course, people with a very strict logic tell you, “Why pray? Why aspire? Why ask? The Lord does what He wants and He will do what He wants.” It is quite obvious, there is no need to say it, but this impulse: “O Lord, manifest!” gives a more intense vibration to His manifestation.

Otherwise, He would never have made the world as it is. There is a special power, a special delight, a special vibration in the intensity of the world’s aspiration to become once more what it is.

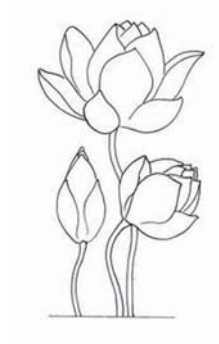
And that is why — partly, fragmentarily — there is an evolution.

An eternally perfect universe, eternally manifesting the eternal perfection, would lack the joy of progress.

6 March 1963

THE MOTHER

(*On Thoughts and Aphorisms*, CWM 2<sup>nd</sup> Ed., Vol. 10, pp. 157-64)



## WONDERS OF PHYSICAL SCIENCE

**110 – To see the composition of the sun or the lines of Mars is doubtless a great achievement; but when thou hast the instrument that can show thee a man’s soul as thou seest a picture, then thou wilt smile at the wonders of physical Science as the playthings of babies.**

THIS is the continuation of what we were saying before about those who want to “see”. Ramakrishna is supposed to have said to Vivekananda, “You can see the Lord just as you see me and hear His voice just as you hear mine.” Some people understood this as an announcement that the Lord was on earth in flesh and blood. I said (*laughing*): “No, it is not that! What he meant is that if you enter the true consciousness, you can hear Him — I say, hear much more clearly than you hear physically and see much more clearly than you see physically.” — “Oh! But . . . .” — Immediately they open their eyes wide, it becomes something unreal!

*Do the wonders of physical science make you smile?*

The “wonders” are all right, that is their business. But it is their overweening self-assurance that makes me smile. They imagine that they know. They imagine that they have the key, that is what makes one smile. They imagine that with everything they have learnt they are the masters of Nature — that is childishness. Something will always escape them so long as they are not in touch with the creative Force and the creative Will.

It is an experiment you can easily make. A scientist can explain all visible phenomena, he can even use physical forces and make them do what he wants — and they have achieved staggering results from the material point of view — but if you just ask them this question, this simple question, “What is death?” — in fact they know nothing about it. They can describe the phenomenon as it happens materially, but if they are sincere, they are obliged to say that it explains nothing.

There always comes a time when it no longer explains anything. Because to know . . . to know is to have power.

*(Silence)*

Ultimately, what is most accessible to materialistic thought, to scientific thought, is the fact that they cannot foresee. They can foresee many things, but the unfolding of terrestrial events is beyond their prevision. I think that this is the only thing they can admit — there is a problematical element, a field of unpredictability which eludes

all their calculations.

I have never talked with a typical scientist who had the most up-to-date knowledge, so I am not quite sure, I do not know how far they admit the unpredictable or the incalculable.

What Sri Aurobindo means, I think, is that when one is in communion with the soul and has the knowledge of the soul, that knowledge is so much more wonderful than material knowledge that there is almost a smile of disdain. I do not think he means that the knowledge of the soul teaches you things about material life that one cannot learn through science.

The only point — I do not know whether science has reached it — is the unpredictability of the future. But perhaps they say it is because they have not yet reached perfection in their instruments and methods. For example, perhaps they think that when man first appeared on earth, if they had had the instruments which they have now, they would have been able to foresee the transformation of the animal into man or the appearance of man as a consequence of “something” in the animal — (*Mother smiles*). I don’t know about their most modern claims. In that case, they ought to be able to measure or perceive the difference in the atmosphere now, after the intrusion of something which was not there before, because that still belongs to the material domain. But I do not think this is what Sri Aurobindo meant; I think he meant that the world of the soul and the inner realities are so much more wonderful than physical realities, that all physical “wonders” make you smile — it is more like that.

*But the key you mention, this key which they do not have, isn't it precisely the soul? A power of the soul over Matter, to change Matter and to work physical wonders too. Doesn't the soul have this power?*

It has that power and exercises it constantly, but the human consciousness is not aware of it; and the big difference is that it is becoming aware. But it is becoming aware of something that is *always there*, and which others deny because they cannot see it.

For example, I have had the opportunity to study this. For me, circumstances, characters, all events and all beings move according to certain “laws”, so to say, which are not rigid, but which I can perceive and which enable me to see: this will lead to that and that will lead there, and since this person is like that, this will happen to him. It is more and more precise. Because of this, I could, if necessary, make predictions. But this relation of cause and effect in that domain is quite obvious for me and it is corroborated by the facts; for them — those who do not have this vision and consciousness of the soul, as Sri Aurobindo says — circumstances unfold according to other superficial laws, which they consider as the natural consequences of things, completely superficial laws that do not stand up to deep analysis. But they

do not have the inner capacity, so it does not worry them, it seems obvious to them.

I mean that this inner knowledge does not have the power to convince them. So that when in connection with any particular event I see: “Oh, but it is quite, quite obvious — for me — I have seen the Force of the Lord at work here, I have *seen* such and such a thing happen and of course that is what is going to occur” — for me, it is quite obvious, but I do not say what I know, because it does not correspond to anything in their experience; to them it would sound like rambling or pretension. That is to say, when you do not have the experience yourself, another person’s experience is not convincing, it cannot convince you. It is not so much a power of acting on Matter — that is happening constantly; but, unless hypnotic methods are used, which are worthless, which lead nowhere — it is a power to open the understanding (*gesture of piercing through the top of the head*); that is what is so difficult. . . . A thing one has not experienced does not exist.

Even if some kind of miracle were to happen in front of them, they would have a material explanation for it; for them it would not be a miracle in the sense of an intervention of a force or power other than the material forces and powers. They would have their material explanation. For them it would not be convincing.

You can only understand if you yourself have touched this domain in your experience.

And one can see, one can see clearly: there is a possibility of understanding only insofar as something has awakened. That is the support, the basis.

*In short, perhaps it is not so much a question of “transforming Matter” as of becoming aware of the true working.*

That is exactly what I mean. The transformation can take place up to a certain point without one even being aware of it.

They say that there is a great difference: when man came, the animal had no way of perceiving it. Well, I say it is exactly the same thing: in spite of everything man has realised, man has no way of perceiving it — certain things may occur and he will only know about it much later, when “something” within him has developed enough for him to perceive it.

Even scientific development carried to its extreme, to the point where one really feels that there is almost no difference, where they arrive at this unity of substance, for example, where it seems that there is only an almost indiscernible or imperceptible transition between one state and the other — the material and the spiritual — well, no, it is not like that. To perceive this kind of unity, one must already carry within oneself the experience of *the other thing*; otherwise one cannot perceive it.

And precisely because they have acquired the capacity to explain, they explain external phenomena to themselves in such a way that they remain in their denial of the reality of inner phenomena — they say that these are, as it were, extensions of

what they have studied.

Only, because of his very constitution, because there hardly exists a human being who hasn't at least a reflection, or a shadow, or a beginning of a relation with his subtle being, his inner being, his soul — because of that there is always a flaw in their denial. But they consider that to be a weakness — it is their only strength.

*(Silence)*

It is really when one has the experience — the experience and knowledge and identity with the higher forces — that one can see the relativity of all external knowledge; but until then, no, one cannot, one denies the other realities.

I think this is what Sri Aurobindo meant: only when the other consciousness has been developed will the scientist smile and say, “Yes, it was all very well, but . . .”

In reality, one cannot lead to the other — except by an act of grace; if inwardly, there is an absolute sincerity which enables the scientist to see, to sense, to perceive the point at which it eludes him, then that can lead him to the other state of consciousness, but *not* by his own procedures. Something must abdicate and accept the new methods, the new perceptions, the new vibration, the new state of soul.

So, it is an individual matter. It is not a question of class or category — the question is whether the scientist is ready to be . . . something else.

*(Silence)*

One can only state one thing: everything you know, however beautiful, is nothing compared to what you can know if you are able to use the other methods.

*(Silence)*

This has been the whole object of my work recently: how to touch this refusal to know? It has been there for a long time. It is the continuation of what Sri Aurobindo said in one of his letters: he says that India has done much more for spiritual life with her methods than Europe has done with all her doubts and questionings. That's exactly it. It is a kind of refusal — the refusal to accept a particular method of knowledge which is not the purely material one, and the denial of experience, of the reality of experience. How can one convince them of that? . . . And then, there is the method of Kali which is to give a sound thrashing. But according to me that means a lot of damage without much result.

This is another big problem.

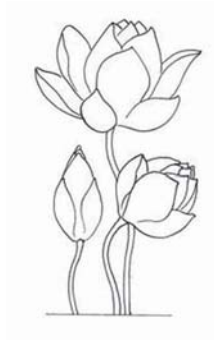
It seems that the only method which can overcome all resistances is the method of Love. But then the adverse forces have perverted love in such a way that many very sincere people, sincere seekers, have steeled themselves, so to say, against this

method, because of its distortion. That is the difficulty. That is why it is taking time.  
However . . .

29 May 1965

THE MOTHER

(*On Thoughts and Aphorisms*, CWM 2<sup>nd</sup> Ed., Vol. 10, pp. 205-11)



## THE LIGHT OF LIGHTS AND ITS SPLENDOUR

SURELY for the earth-consciousness the very fact that the Divine manifests himself is the greatest of all splendours. Consider the obscurity here and what it would be if the Divine did not directly intervene and the Light of Lights did not break out of the obscurity — for that is the meaning of the manifestation.

\* \* \*

An incarnation is the Divine Consciousness and Being manifesting through the body. It is possible from any plane.

\* \* \*

It is the omnipresent cosmic Divine who supports the action of the universe; if there is an Incarnation, it does not in the least diminish the cosmic Presence and the cosmic action in the three or thirty million universes.

\* \* \*

The Descending Power (Avatar) chooses its own place, body, time for the manifestation.

\* \* \*

The Avatar is necessary when a special work is to be done and in crises of the evolution. The Avatar is a special manifestation while for the rest of the time it is the Divine working within the ordinary human limits as a Vibhuti.

(SABCL, Vol. 22, p. 401)

\* \* \*

The work for which the Avatar descends has like his birth a double sense and a double form. It has an outward side of the divine force acting upon the external world in order to maintain there and to reshape the divine law by which the Godward effort of humanity is kept from decisive retrogression and instead decisively carried forward in spite of the rule of action and reaction, the rhythm of advance and relapse by which Nature proceeds. It has an inward side of the divine force of the Godward consciousness acting upon the soul of the individual and the soul of the race, so that



it may receive new forms of revelation of the Divine in man and may be sustained, renewed and enriched in its power of upward self-unfolding. The Avatar does not descend merely for a great outward action, as the pragmatic sense in humanity is too often tempted to suppose. Action and event have no value in themselves, but only take their value from the force which they represent and the idea which they symbolise and which the force is there to serve.

(CWSA, Vol. 19, p. 168)

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The Avatar may descend as a great spiritual teacher and saviour, the Christ, the Buddha, but always his work leads, after he has finished his earthly manifestation, to a profound and powerful change not only in the ethical, but in the social and outward life and ideals of the race. He may, on the other hand, descend as an incarnation of the divine life, the divine personality and power in its characteristic action, for a mission ostensibly social, ethical and political, as is represented in the story of Rama or Krishna; but always then this descent becomes in the soul of the race a permanent power for the inner living and the spiritual rebirth. It is indeed curious to note that the permanent, vital, universal effect of Buddhism and Christianity has been the force of their ethical, social and practical ideals and their influence even on the men and the ages which have rejected their religious and spiritual beliefs, forms and disciplines; later Hinduism which rejected Buddha, his *saṅgha* and his *dharma*, bears the ineffaceable imprint of the social and ethical influence of Buddhism and its effect on the ideas and the life of the race, while in modern Europe, Christian only in name, humanitarianism is the translation into the ethical and social sphere and the aspiration to liberty, equality and fraternity the translation into the social and political sphere of the spiritual truths of Christianity, the latter especially being effected by men who aggressively rejected the Christian religion and spiritual discipline and by an age which in its intellectual effort of emancipation tried to get rid of Christianity as a creed. On the other hand the life of Rama and Krishna belongs to the prehistoric past which has come down only in poetry and legend and may even be regarded as myths; but it is quite immaterial whether we regard them as myths or historical facts, because their permanent truth and value lie in their persistence as a spiritual form, presence, influence in the inner consciousness of the race and the life of the human soul. Avatarhood is a fact of divine life and consciousness which may realise itself in an outward action, but must persist, when that action is over and has done its work, in a spiritual influence; or may realise itself in a spiritual influence and teaching, but must then have its permanent effect, even when the new religion or discipline is exhausted, in the thought, temperament and outward life of mankind.

(CWSA, Vol. 19, pp. 170 -71)

### THE SUPRAMENTAL REALISATION

In order to know what the Supramental Realisation will be like, the first step, the first condition is to know what the supramental consciousness is. All those who have been, in one way or another, in contact with it have had some glimpse of the realisation to be. But those who have not, can yet aspire for that realisation, just as they can aspire to get the supramental knowledge. True knowledge means awareness by identity: once you get in touch with the supramental world, you can say something about its descent, but not before. What you can say before is that there will be a new creation upon earth; this you say through faith, since the exact character of it escapes you. And if you are called upon to define realisation, you may declare that, individually speaking, it means the transformation of your ordinary human consciousness into the divine and supramental. The consciousness is like a ladder: at each great epoch there has been one great being capable of adding one more step to the ladder and reaching a place where the ordinary consciousness had never been. It is possible to attain a high level and get completely out of the material consciousness; but then one does not retain the ladder, whereas the great achievement of the great epochs of the universe has been the capacity to add one more step to the ladder without losing contact with the material, the capacity to reach the Highest and at the same time connect the top with the bottom instead of letting a kind of emptiness cut off all connection between the different planes. To go up and down and join the top to the bottom is the whole secret of realisation, and that is the work of the Avatar. Each time he adds one more step to the ladder there is a new creation upon earth. . . . The step which is being added now Sri Aurobindo has called the Supramental; as a result of it, the consciousness will be able to enter the supramental world and yet retain its personal form, its individualisation and then come down to establish here a new creation. Certainly this is not the last, for there are farther ranges of being; but now we are at work to bring down the supramental, to effect a reorganisation of the world, to bring the world back to the true divine order. It is essentially a creation of order, a putting of everything in its true place; and the chief spirit or force, the Shakti active at present is Mahasaraswati, the Goddess of perfect organisation.

The work of achieving a continuity which permits one to go up and down and bring into the material what is above, is done inside the consciousness. He who is meant to do it, the Avatar, even if he were shut up in a prison and saw nobody and never moved out, still would he do the work, because it is a work in the consciousness, a work of connection between the Supermind and the material being. He does not need to be recognised, he need have no outward power in order to be able to establish this conscious connection. Once, however, the connection is made, it must have its effect in the outward world in the form of a new creation, beginning with a model town and ending with a perfect world.

(*CWM*, Vol. 3, pp. 178-79)

## PURPOSE OF THE AVATAR

*(Mother concentrates for a moment, opens the book and reads silently.)*

This is the problem you are interested in: the purpose of the Avatar:

*“I have said that the Avatar is one who comes to open the Way for humanity to a higher consciousness . . . .”*

This is where I put my paper-knife. He adds this:

*“If nobody can follow the Way, then either our conception of the thing, which is also that of Christ and Krishna and Buddha also, is all wrong or the whole life and action of the Avatar is quite futile.”*

*Sri Aurobindo, Letters on Yoga, SABCL, Vol. 22, p. 408*

I don't know if this is a problem which you have been thinking about, but anyway this is what has come in reply . . . . It was obviously for someone who had asked him: “The Avatar comes and opens the Way, but if there is nobody to follow him, what happens?” Sri Aurobindo says: either his conception is wrong or his life is quite futile. That is to say, if a divine Power comes on earth to open the Way to a higher realisation and it so happens that there is nobody on earth to follow the path, it is quite obvious that it was useless for him to come. But as a matter of fact, I don't think it has ever happened.

Let me see the end of the sentence . . . . Yes, it is in reply to someone who said:

*“There is no way and no possibility of following it”, and “that all the struggles and sufferings of the Avatar are unreal and all humbug” —*

That well-known English word! This person declared that there was

*“no possibility of struggle or effort for one who represents the Divine.”*

That is to say, the denial of the life of all those mentioned here. And Sri Aurobindo adds that

*“Such a conception makes nonsense of the whole idea of Avatarhood;” and “there is then no reason in it, no necessity in it, no meaning in it.”*

He adds *(Mother laughs)*:

*“The Divine being all-powerful can lift people up without bothering to come down on earth.”*

He can do it just like this (*gesture*), he is all-powerful, he has only to pull them up and then they will be lifted up. Why should he come and take all this trouble here?

And Sri Aurobindo says in conclusion:

*“It is only if it is a part of the world-arrangement that he should take upon himself the burden of humanity and open the Way that the Avatar has any meaning.”*

Letters on Yoga, pp. 408-09

There he touches on a problem you were concerned about, no? You have never asked yourself this question: what was the purpose of a divine incarnation in a human body, whether it was necessary or not, and how it happened and why it happened? This question has never interested you? No?

*Not in this way.*

Not in this way. Then it was in reply to something you were not conscious of. I know what it was an answer to, but you were not conscious.

Ah! does anyone else want anything? Nobody? . . . Oh! how shy you all are.

(CWM, Vol. 8, pp. 165-67)

## AVATARHOOD AND MODERN IDEAS

The question was if certain perfections must not be demanded of the Divine Manifestation which seemed to me quite irrelevant to the reality. I put forward two propositions which appear to me indispensable unless we are to reverse all spiritual knowledge in favour of modern European ideas about things: first, the Divine Manifestation, even when it manifests in mental and human ways, has behind it a consciousness greater than the mind and not bound by the petty mental and moral conventions of this very ignorant human race — so that to impose these standards on the Divine is to try to do what is irrational and impossible. Secondly, this Divine Consciousness behind the apparent personality is concerned with only two things in a fundamental way — the truth above and here below the Lila and the purpose of the incarnation or manifestation, and it does what is necessary for that in the way its greater than human consciousness sees to be the necessary and intended way.

But I do not understand how all that can prevent me from answering mental questions. On my own showing, if it is necessary for the divine purpose, it has to be

done. Sri Ramakrishna himself answered thousands of questions, I believe. But the answers must be such as he gave and such as I try to give, answers from a higher spiritual experience, from a deeper source of knowledge and not lucubrations of the logical intellect trying to coordinate its ignorance. Still less can there be a placing of a divine truth before the judgments of the intellect to be condemned or acquitted by that authority — for the authority here has no sufficient jurisdiction or competence.

(*SABCL*, Vol. 22, pp. 421-22)

## AVATARHOOD AND EVOLUTION

It [the overmind liberation] can't be supreme if there is something beyond it — but there is a liberation even in higher Mind. But in speaking of supreme liberation I was simply taking the Buddhist-Adwaita view for granted and correcting it by saying that this Nirvana view is too negative. Krishna opened the possibility of overmind with its two sides of realisation, static and dynamic. Buddha tried to shoot from mind to Nirvana in the Supreme, just as Shankara did in another way after him. Both agree in overleaping the other stages and trying to get at a nameless and featureless Absolute. Krishna on the other hand was leading by the normal course of evolution. The next normal step is not a featureless Absolute, but the supermind. I consider that in trying to overshoot, Buddha like Shankara made a mistake, calling away the dynamic side of the liberation. Therefore there has to be a correction by Kalki.

I was of course dealing with the ten Avatars as a “parable of the evolution”, and only explaining the interpretation we can put on it from that point of view. It was not my own view of the thing that I was giving.

\* \* \*

Too much importance need not be attached to the details about Kalki — they are rather symbolic than an attempt to prophesy details of future history. What is expressed is something that has to come, but it is symbolically indicated, no more.

So too, too much weight need not be put on the exact figures about the Yugas in the Purana. Here again the Kala and the Yugas indicate successive periods in the cyclic wheel of evolution, — the perfect state, decline and disintegration of successive ages of humanity followed by a new birth — the mathematical calculations are not the important element. The argument of the end of the Kali Yuga already come or coming and a new Satya Yuga coming is a very familiar one and there have been many who have upheld it.

(*SABCL*, Vol. 22, pp. 402-03)

## BIRTH OF THE ETERNAL ON EARTH

Today I received a question about a phrase I used on the fourteenth of August, the eve of Sri Aurobindo's birthday. And this question seemed interesting to me because it was about one of those rather cryptic phrases, that are almost ambiguous through simplification, and which was intended to be like that, so that each one might understand it according to his own plane of consciousness. I have already spoken to you several times of this possibility of understanding the same words on different planes; and these words were intentionally expressed with a simplification, a deliberate vagueness, precisely so that they would serve as a vehicle for the complexity of meaning they had to express.

This meaning is a little different on the different planes, but it is complementary, and it is only really complete when one is able to understand it on all these planes at once. True understanding is a simultaneous understanding in which all the meanings are perceived, grasped, understood at the same time; but to express them, as we have a very poor language at our disposal, we are obliged to say them one after another, with many words and many explanations . . . That's what I am going to do now.

The question is about the phrase in which I spoke of the birth of Sri Aurobindo — it was on the eve of his birthday — and I called it an "eternal birth". I am asked what I meant by "eternal".

Of course, if the words are taken literally, an "eternal birth" doesn't signify much. But I am going to explain to you how there can be — and in fact is — a physical explanation or understanding, a mental understanding, a psychic understanding and a spiritual understanding.

Physically, it means that the consequences of this birth will last as long as the Earth. The consequences of Sri Aurobindo's birth will be felt throughout the entire existence of the Earth. And so I called it "eternal", a little poetically.

Mentally, it is a birth the memory of which will last eternally. Through the ages Sri Aurobindo's birth will be remembered, with all the consequences it has had.

Psychically, it is a birth which will recur eternally, from age to age, in the history of the universe. This birth is a manifestation which takes place periodically, from age to age, in the history of the Earth. That is, the birth itself is renewed, repeated, reproduced, bringing every time perhaps something more — something more complete and more perfect — but it is the same movement of descent, of manifestation, of birth in an earthly body.

And finally, from the purely spiritual point of view, it could be said that it is the birth of the Eternal on Earth. For each time the Avatar takes a physical form it is the birth of the Eternal himself on Earth.

All that, contained in two words: "eternal birth".

So, to conclude, I advise you, in future, before telling yourself: "Why! What does this mean? I don't understand it at all; perhaps it is not expressed properly," you

could say to yourself: “Perhaps I am not on the plane where I would be able to understand”, and try to find behind the words something more than mere words. There.

I think this will be a good subject for our meditation.

*(Meditation)*

*(CWM, Vol. 9, pp. 178-79)*

### **‘BUDDHA WAS AN AVATAR’**

And then, the last question:

*“Sri Aurobindo has said that the Buddha was an avatar . . . .”*

We have said this several times already.

And then, here it becomes very mysterious:

*“Apart from the teaching of the Buddha, what remains of his personality in the world?”*

*(To the disciple who had asked the question)*

Why do you make this distinction?

*When he entered into Nirvana, it was said that his teaching would now remain in the relics.*

In the relics! Well, then that means the two things go together. I don’t see why you separate them. There is something of his influence in his teaching, naturally! It is the teaching that transmits his influence in the mental field.

His direct action, apart from his teaching, is limited to a very few people who are very fervent believers and have the power of evocation. Otherwise, the most important part of his action, almost the whole of his action, is associated, united, fused with his teaching. It seems difficult to make a distinction.

*(After a silence)* The forms of Divine Power which have incarnated in different beings, have incarnated with a specific aim, for a specific action, at a specific moment of universal development, but essentially they are only differentiated aspects of the One Being; therefore, it is in the particular purpose of the action that the difference lies. Otherwise it is always the same Truth, the same Power, the same eternal Life which manifests in these forms and creates these forms at a given moment for a specific reason and a specific aim; this is preserved in history, but eternally they are new

forms which are used for new progress. Old forms can endure as a vibration lasts, but their purpose historically, it could be said, was momentary, and one form is replaced by another in order that a new step forward may be taken. The mistake humanity makes is that it always hangs on to what is behind it and wants to perpetuate the past indefinitely. These things must be used at the time when they are useful. For there is a history of *each* individual development; you may pass through stages in which these disciplines have their momentary utility, but when you have gone beyond that moment you ought to enter into something else and see that historically it was useful but now is so no longer. Certainly, to those who have reached, for instance, a certain state of development and mental control, I won't say, "Read the Dhammapada and meditate on it"; it would be a waste of time. I give it to those who have not gone beyond the stage where it is necessary. But always man takes upon his shoulders an interminable burden. He does not want to drop anything of the past and he stoops more and more under the weight of a useless accumulation.

You have a guide for a part of the way but when you have travelled this part leave the road and the guide and go farther! This is something men find difficult to do. When they get hold of something which helps them, they cling to it, they do not want to move any more. Those who have progressed with the help of Christianity do not want to give it up and they carry it on their shoulders; those who have progressed with the help of Buddhism do not want to leave it and they carry it on their shoulders, and so this hampers the advance and you are indefinitely delayed.

Once you have passed the stage, let it drop, let it go! Go farther.

*Mother, the present religio-political movement for the revival of Buddhism . . .*

What? Oh! I don't take part in politics. It is altogether useless. People use things just for political ends, but that is not at all interesting.

(CWM, Vol. 9, pp. 197-99)

## **TOTAL AVATAR OF THE SUPREME**

Today I have been asked to speak to you about the Avatar.

The first thing I have to say is that Sri Aurobindo has written on this subject and the person who has asked me the question would do well to begin by reading what Sri Aurobindo has written.

I shall not speak to you about that, for it is better to read it for yourself.

But I could speak to you of a very old tradition, more ancient than the two known lines of spiritual and occult tradition, that is, the Vedic and Chaldean lines; a tradition which seems to have been at the origin of these two known traditions, in which it is said that when, as a result of the action of the adverse forces — known in the Hindu



tradition as the Asuras — the world, instead of developing according to its law of Light and inherent consciousness, was plunged into the darkness, inconscience and ignorance that we know, the Creative Power implored the Supreme Origin, asking him for a special intervention which could save this corrupted universe; and in reply to this prayer there was emanated from the Supreme Origin a special Entity, of Love and Consciousness, who cast himself directly into the most inconscient matter to begin there the work of awakening it to the original Consciousness and Love.

In the old narratives this Being is described as stretched out in a deep sleep at the bottom of a very dark cave, and in his sleep there emanated from him prismatic rays of light which gradually spread into the Inconscience and embedded themselves in all the elements of this Inconscience to begin there the work of Awakening.

If one consciously enters into this Inconscient, one can still see there this same marvellous Being, still in deep sleep, continuing his work of emanation, spreading his Light; and he will continue to do it until the Inconscience is no longer inconscient, until Darkness disappears from the world — and the whole creation awakens to the Supramental Consciousness.

And it is remarkable that this wonderful Being strangely resembles the one whom I saw in vision one day, the Being who is at the other extremity, at the confines of form and the Formless. But that one was in a golden, crimson glory, whereas in his sleep the other Being was of a shining diamond whiteness emanating opalescent rays.

In fact, this is the origin of all Avatars. He is, so to say, the first universal Avatar who, gradually, has assumed more and more conscious bodies and finally manifested in a kind of recognised line of Beings who have descended *directly* from the Supreme to perfect this work of preparing the universe so that, through a continuous progression, it may become ready to receive and manifest the supramental Light in its entirety.

In every country, every tradition, the event has been presented in a special way, with different limitations, different details, particular features, but truly speaking, the origin of all these stories is the same, and that is what we could call a direct, conscious intervention of the Supreme in the darkest matter, without going through all the intermediaries, in order to awaken this Matter to the receptivity of the Divine Forces.

The intervals separating these various incarnations seem to become shorter and shorter, as if, to the extent that Matter became more and more ready, the action could accelerate and become more and more rapid in its movement, more and more conscious too, more and more effective and decisive.

And it will go on multiplying and intensifying until the entire universe becomes the total Avatar of the Supreme.

## THE COMING OF DIVINE EMANATIONS

*You said that this physical world was a projection of invisible worlds. Then why should the divine Emanations come into the physical world to transform it? They have only to do the work in the invisible planes; then the projections will be good.*

That indeed is a serious question! . . . You know the image sometimes given to the universe: a serpent biting its tail? And it is taken as the symbol of the infinite, of the universe. Well, it is a fact. In the creation there is a progressive, a greater and greater materialisation. But we could take another image (I am taking an approximate image): the universe is a circle or rather a sphere (but for the convenience of explanation, let us take a circle). There is a progressive descent from the most subtle to the most material. But the most material happens to touch the point of origin of the most subtle. Then, if you understand the image, instead of going all the way round to change matter, it is much more easy to do the thing directly, for the two extremities meet — the extremely subtle and the extremely material touch, since it is a sphere. Hence, instead of doing all that (*Mother draws a circle*), it is much better to do this (*Mother touches the extreme material end of the circle*). In fact, psychologically it is that. The rest will follow quite naturally. If that is done (*Mother touches the same extreme material end*), all the rest will get settled as a matter of course. And it is not even like this! It is precisely for the convenience of work that all has been concentrated or concretised at one point so that instead of having to spread oneself out in the infinite to change things, one can work just on the point that serves as the symbol of the whole universe. And from the occult standpoint, earth (which is nothing from the astronomical standpoint; in the immensity of the astronomical skies, earth is a thing absolutely without interest and without importance), but from the occult and spiritual point of view, earth is the concentrated symbol of the universe. For it is much more easy to work on one point than in a diluted vastness. All those who do the work know this. Well, for the convenience and necessity of work, the whole universe has been concentrated and condensed symbolically in a grain of sand which is called Earth. And therefore it is the symbol of everything; all that is to be changed, all that is to be transformed, all that is to be converted is there. This means that if one concentrates on this work and does it there, all the rest will follow automatically, otherwise there will be no end — and no hope.

But that is also why this point appears as particularly bad! Because everything is concentrated. And that can be particularly good also. For always there are the two, the two opposites are together. And always the best borders on the worst, or the worst borders on the best (it depends on the side you look from). But it is because of the worst that you can find the best and it is because of the best that you can transform the worst — the two act and react upon each other . . . That was published in the *Bulletin*:

the “Evil Persona”.\* It is always said that there is a dark double of all the stars and a luminous double of all the planets. In the occult way, it is said that there is a luminous earth. All that is the experience of the luminous earth. Sri Aurobindo has described the experience.

*What experience?*

It is an experience that I had and I wrote about it to Sri Aurobindo. He answered me saying that it was an experience of Vedic times, an experience that happened in the luminous double of the earth . . . . That will come out somewhere one day.\*\*

(CWM, Vol. 5, pp. 274-76)

\* “What you say about the “Evil Persona” interests me greatly as it answers to my consistent experience that a person greatly endowed for the work has, always or almost always, — perhaps one ought not to make a too rigid universal rule about these things — a being attached to him, sometimes appearing like a part of him, which is just the contradiction of the thing he centrally represents in the work to be done. Or, if it is not there at first, not bound to his personality, a force of this kind enters into his environment as soon as he begins his movement to realise. Its business seems to be to oppose, to create stumblings and wrong conditions, in a word, to set before him the whole problem of the work he has started to do. It would seem as if the problem could not, in the occult economy of things, be solved otherwise than by the predestined instrument making the difficulty his own. That would explain many things that seem very disconcerting on the surface.”

Sri Aurobindo, *Letters on Yoga*, SABCL, Vol. 24, p. 1660

**\*\* The Mother’s Notation of the Experience of November 26, 1915**

The entire consciousness immersed in divine contemplation, the whole being enjoyed a supreme and vast felicity.

Then was the physical body seized, first in its lower members and next the whole of it, by a sacred trembling which made all personal limits fall away little by little even in the most material sensation. The being grew in greatness progressively, methodically, breaking down every barrier, shattering every obstacle, that it might contain and manifest a force and a power which increased ceaselessly in immensity and intensity. It was as a progressive dilatation of the cells until there was a complete identification with the earth: the body of the awakened consciousness was the terrestrial globe moving harmoniously in ethereal space. And the consciousness knew that its global body was thus moving in the arms of the universal Being, and it gave itself, it abandoned itself to It in an ecstasy of peaceful bliss. Then it felt that its body was absorbed in the body of the universe and one with it; the consciousness became the

consciousness of the universe, immobile in its totality, moving infinitely in its internal complexity. The consciousness of the universe sprang towards the Divine in an ardent aspiration, a perfect surrender, and it saw in the splendour of the immaculate Light the radiant Being standing on a many-headed serpent whose body coiled infinitely around the universe. The Being in an eternal gesture of triumph mastered and created at one and the same time the serpent and the universe that issued from him; erect on the serpent he dominated it with all his victorious might, and the same gesture that crushed the hydra enveloping the universe gave it eternal birth. Then the consciousness became this Being and perceived that its form was changing once more; it was absorbed into something which was no longer a form and yet contained all forms, something which, immutable, sees, — the Eye, the Witness. And what It sees, is. Then this last vestige of form disappeared and the consciousness itself was absorbed into the Unutterable, the Ineffable.

The return towards the consciousness of the individual body took place very slowly in a constant and invariable splendour of Light and Power and Felicity and Adoration, by successive gradations, but directly, without passing again through the universal and terrestrial forms. And it was as if the modest corporeal form had become the direct and immediate vesture, without any intermediary, of the supreme and eternal Witness.

(CWM, Vol. 1, pp. 311-12)

### **SRI AUROBINDO'S REPLY**

The experience you have described is Vedic in the real sense, though not one which would easily be recognised by the modern systems of Yoga which call themselves Vedic. It is the union of the "Earth" of the Veda and Purana with the divine Principle, an earth which is said to be above our earth, that is to say, the physical being and consciousness of which the world and the body are only images. But the modern Yogas hardly recognise the possibility of a material union with the Divine.

31-12-1915

(SABCL, Vol. 25, p. 384)

### **ORIGIN OF THE GODS**

*From where do the gods come?*

That means? . . . "From where" means what? What is their origin? Who has formed them? . . . But everything, everything comes from the one Origin, from the Supreme, the gods also.

There is a very old tradition which narrates this. I am going to tell you the story as one does to children, for in this way you will understand:

One day “God” decided to exteriorise himself, objectivise himself, in order to have the joy of knowing himself in detail. So, first of all, he emanated his consciousness (that is to say, he manifested his consciousness) by ordering this consciousness to realise a universe. This consciousness began by emanating four beings, four individualities which were indeed altogether very high beings, of the highest Reality. They were the being of consciousness, the being of love (of Ananda rather), the being of life and the being of light and knowledge — but consciousness and light are the same thing. There we are then: consciousness, love and Ananda, life and truth — truth, that’s the exact word. And naturally, they were supremely powerful beings, you understand. They were what are called in that tradition the first emanations, that is, the first formations. And each one became very conscious of its qualities, its power, its capacities, its possibilities, and, suddenly forgot each in its own way that it was only an emanation and an incarnation of the Supreme. And so this is what happened: when light or Consciousness separated from the divine Consciousness, that is, when it began to think it was the divine Consciousness and that there was nothing other than itself, it suddenly became obscurity and inconstancy. And when Life thought that all life was in itself and that there was nothing else but its life and that it did not depend at all upon the Supreme, then its life became death. And when Truth thought that it contained all truth, and that there was no other truth than itself, this Truth became falsehood. And when love or Ananda was convinced that it was the supreme Ananda and that there was no other than itself and its felicity, it became suffering. And that is how the world, which was to have been so beautiful, became so ugly. Now, that consciousness (if you like to call it the Divine Mother, the Supreme Consciousness), when she saw this she was very disturbed, you may be sure, she said to herself: “This has really not succeeded.” So she turned back to the Divine, to God, the Supreme, and she asked him to come to her aid. She said to him: “This is what has happened. Now what is to be done?” He said: “Begin again, but try to manage in such a way that the beings do not become so independent! . . . They must remain in contact with you, and through you with me.” And it was thus that she created the gods, who were quite docile and not so proud, and who began the creation of the world. But as the others had come before them, at every step the gods met the others. And it was in this way that the world changed into a battlefield, a place of war, strife, suffering, darkness and all the rest, and for each new creation the gods had to fight with the others who had gone ahead: they had preceded them, they had plunged headlong into matter; and they had created all this disorder and the gods had to put straight all this confusion. That is where the gods came from. They are the second emanations.

(CWM, Vol. 5, pp. 371-72)

**ONE AVATAR CANNOT BY HIMSELF REALISE  
THE SUPRAMENTAL LIFE ON EARTH**

**74 – Practical knowledge is a different thing; that is real and serviceable, but it is never complete. Therefore to systematise and codify it is necessary but fatal.**

**75 – Systematise we must, but even in making and holding the system, we should always keep firm hold on this truth that all systems are in their nature transitory and incomplete.**

I have looked at this very, very often. There was even a time when I thought that if one could have a total, complete and perfect knowledge of the entire working of physical Nature as we perceive it in the world of Ignorance, that might be a way to rediscover or to re-attain the truth of things. After my latest experience I cannot think this any more.

I do not know if I am making myself clear. There was a time — for a very long period — when I thought that if science were to realise its full potential, but in an absolute way, if that were possible, it would reach true Knowledge. For example, in its study of the composition of Matter, by pushing and pushing its investigations further and further, a time would come when the two would meet. Well, when I had the experience of passing from the eternal Truth-consciousness to the consciousness of the individualised world, it became clear to me that this was impossible. And if you ask me now, I think that both these things, the possibility of a meeting by carrying science to its extreme and the impossibility of any true conscious connection with the material world, are equally incorrect. There is something else.

And these last few days, more and more, I find myself faced with the total problem, as if I had never seen it before.

Perhaps they are two paths leading to a third point, and at the moment perhaps it is this third point that I am not exactly studying, but searching for, where the two would meet in a third one which would be the True Thing.

But certainly, objective, scientific knowledge carried to its extreme, if it is possible for it to become absolutely total, leads at least to the threshold. That is what Sri Aurobindo says. Only he says that it is fatal, because all those who have devoted themselves to that knowledge, have believed in it as an absolute truth, and for them this has closed the door to the other approach. In that way it is fatal.

But according to my personal experience, I could say that for all those who believe in the *exclusive* spiritual approach, the approach through inner experience, at least if it is exclusive, is also fatal — because it shows them *one* aspect, *one* truth of the Whole, not the Whole. The other aspect seems equally indispensable to me, in the sense that while I was so totally immersed in the supreme Realisation, it was absolutely

indisputable that the other realisation, the outer, the illusory one, was only a distortion, probably accidental, of something that was *just as* true as that one.

It is this “something” that we are searching for — perhaps not only searching for it, but *making* it.

We are being used so that we can participate in the manifestation of “that”, of “that” which is still inconceivable to everyone, because it is not yet there. It is an expression that is yet to come.

This is all I can say.

*(Silence)*

That is really the state of consciousness I am living in at present. It is as if I were confronted with this eternal problem, but *from another standpoint*.

These standpoints, the spiritual and the “materialist”, if one may say so, that think they are exclusive — exclusive and unique, so that one denies the value of the other, from the point of view of Truth — are insufficient, not only because they do not accept one another, but also because to accept both and to unite both is not enough to solve the problem. It is something else — a third thing which is not the result of these two, but something that is yet to be discovered, which will probably open the door to the total Knowledge.

This is the point I have reached.

I cannot say more because that is where I am.

*In practice, how can we participate in this . . . ?*

This discovery?

Well! . . . Basically, it is always the same thing. It is always the same thing: to realise one’s own being, to enter into conscious relation with the supreme Truth of one’s own being, in *any* form, by *any* path — it does not matter at all — but this is the only way. We carry, each individual carries within him a truth, and this is the truth he must unite with, this is the truth he must live; and so the path he must follow to reach and realise this truth is the path that will lead him *as near as possible* to Knowledge. That is to say, the two are absolutely one: the personal realisation and the Knowledge.

Who knows, perhaps this very multiplicity of approach will yield the secret — the secret that will open the door.

I do not think that a single individual on the earth as it is now, a single individual, however great, however eternal his consciousness and origin, can on his own change and realise — change the world, change the creation as it is and realise this higher Truth which will be a new world, a world more true, if not absolutely true. It would seem that a certain number of individuals — until now it seems to have been more in time, as a succession, but it could also be in space, a collectivity — are indispensable

so that this Truth can become concrete and realise itself.

Practically, I am sure of it.

That is to say, however great, however conscious, however powerful he may be, *one* Avatar cannot by himself realise the supramental life on earth. It is either a group in time, extending over a period of time, or a group spread out in space — perhaps both — that are indispensable for this Realisation. I am convinced of it.

The individual can give the impulsion, indicate the path, *walk* on the path himself — that is to say, show the path by realising it himself — but he cannot fulfil. The fulfilment obeys certain group laws which are the expression of some aspect of Eternity and Infinity — naturally, it is all the same Being! They are not different individuals or different personalities, it is all the same Being. And it is all the same Being expressing Himself in a way which for us becomes a body, a group, a collectivity.

(CWM, Vol. 10, pp. 134-37)

### **THE HOPE OF THE MESSIAH, THE EXPECTATION OF THE AVATAR**

. . . And times there are, ages of stupendous effort and initiative when the gods seem no longer satisfied with this tardy and fragmentary working, when the ideal breaks constantly through the dull walls of the material practical life, incalculable forces clash in its field, innumerable ideas meet and wrestle in the arena of the world and through the constant storm and flash, agitation of force and agitation of light the possibility of the victoriously fulfilled ideal, the hope of the Messiah, the expectation of the Avatar takes possession of the hearts and thoughts of men. Such an age seems now to be coming upon the world. But whether that hope and expectation and possibility are to come to anything depends upon whether men prepare their souls for the advent and rise in the effort of their faith, life and thought to the height and purity of a clearly-grasped ideal. The Messiah or Avatar is nothing but this, the divine Seer-Will descending upon the human consciousness to reveal to it the divine meaning behind our half-blind action and to give along with the vision the exalted will that is faithful and performs and the ideal force that executes according to the vision.

(CWSA, Vol. 13, pp. 117-18)



## **LOVE ALONE CAN PUT AN END TO THE SUFFERING OF THE WORLD**

For one who has known love for the Divine, all other forms of love are obscure and too mixed with pettiness and egoism and darkness; they are like a perpetual haggling or a struggle for supremacy and domination, and even among the best they are full of misunderstanding and irritability, of friction and incomprehension.

Moreover, it is a well-known fact that one grows into the likeness of what one loves. Therefore if you want to be like the Divine, love Him alone. Only one who has known the ecstasy of the exchange of love with the Divine can know how insipid and dull and feeble any other exchange is in comparison. And even if the most austere discipline is required to arrive at this exchange, nothing is too hard, too long or too severe in order to achieve it, for it surpasses all expression.

This is the marvellous state we want to realise on earth; it is this which will have the power to transform the world and make it a habitation worthy of the Divine Presence. Then will pure and true love be able to incarnate in a body that will no longer be a disguise and a veil for it. Many a time, in order to make the discipline easier and to create a closer and more easily perceptible intimacy, the Divine has sought, in his highest form of love, to assume a physical body similar in appearance to the human body; but each time, imprisoned within the gross forms of Matter, he was able to express only a caricature of himself. And in order to manifest in the fullness of his perfection he waits only for human beings to have made some indispensable progress in their consciousness and in their bodies; for the vulgarity of man's vanity and the stupidity of his conceit mistake the sublime divine love, when it expresses itself in a human form, for a sign of weakness and dependence and need.

And yet man already knows, at first obscurely, but more and more clearly as he draws nearer to perfection, that love alone can put an end to the suffering of the world; only the ineffable joy of love in its essence can sweep away from the universe the burning pain of separation. For only in the ecstasy of the supreme union will creation discover its purpose and its fulfilment.

That is why no effort is too arduous, no austerity too rigorous if it can illumine, purify, perfect and transform the physical substance so that it may no longer conceal the Divine when he takes on an outer form in Matter. For then this marvellous tenderness will be able to express itself freely in the world, the divine love which has the power of changing life into a paradise of sweet joy.

*(CWM, Vol. 12, pp. 69-70)*

### **HIS WORK WILL BE DONE**

In the eternity of becoming, each Avatar is only the announcer, the forerunner of a more perfect realisation.

And yet men have always the tendency to deify the Avatar of the past in opposition to the Avatar of the future.

Now again Sri Aurobindo has come announcing to the world the realisation of tomorrow; and again his message meets with the same opposition as of all those who preceded him.

But tomorrow will prove the truth of what he revealed and his work will be done.

*21 February 1957*

(CWM, Vol. 13, p. 22)

### **TO BELIEVE OR NOT TO BELIEVE**

To believe or not to believe in the possibility of avatarhood can make no difference to the bare fact. If God chooses to manifest in a human body I do not see how any human thought, approval or disapproval can affect in the least His decision; and if He takes birth in a body, the denial of men cannot prevent the fact from being a fact. So what is there to get excited about. It is only in perfect quietness and silence, free from all prejudices and preferences, that the consciousness can perceive the truth.

*24 September 1953*

(CWM, Vol. 13, p. 50)

### **GREAT INNOVATORS AND RENOVATORS**

. . . The greatest spirits are therefore those who have no fear of the future, who accept its challenge and its wager; they have that sublime trust in the God or Power that guides the world, that high audacity of the human soul to wrestle with the infinite and realise the impossible, that wise and warrior confidence in its ultimate destiny which mark the Avatars and prophets and great innovators and renovators.

(CWSA, Vol. 13, p. 130)

## **LOVE, POWER, KNOWLEDGE**

. . . None of these oppositions is more constant than that of Power and Love: yet neither of these deities can be safely neglected. What can be more divine than Love? But followed exclusively it is impotent to solve the world's discords. The worshipped Avatar of love and the tender saint of saints leave behind them a divine but unfollowed example, a luminous and imperishable but ineffective memory. They have added an element to the potentialities of the heart, but the race cannot utilise it effectively for life because it has not been harmonised with the rest of the qualities that are essential to our fullness. Shall we therefore turn round and give ourselves to Power with its iron hands of action and its hard and clear practical intellect? The men of power may say that they have done a more tangible work for their race than the souls of Love, but it is a vain advantage. For they have not even tried to raise us beyond our imperfect humanity. They have erected a temporary form or given a secular impetus. An empire has been created, an age or a century organised, but the level of humanity has not been raised nearer to the secret of a Caesar or a Napoleon. Love fails because it hastily rejects the material of the world's discords or only tramples them underfoot in an unusual ecstasy; Power because it seeks only to organise an external arrangement. The world's discords have to be understood, seized, transmuted. Love must call Power and Knowledge into the temple and seat them beside her in a unified equality; Power must bow its neck to the yoke of Light and Love before it can do any real good to the race.

Unity is the secret, a complex, understanding and embracing unity. When the full heart of Love is tranquillised by knowledge into a calm ecstasy and vibrates with strength, when the strong hands of Power labour for the world in a radiant fullness of joy and light, when the luminous brain of knowledge accepts and transforms the heart's obscure inspirations and lends itself to the workings of the high-seated Will, when all these gods are founded together on a soul of sacrifice that lives in unity with all the world and accepts all things to transmute them, then is the condition of man's integral self-transcendence. This and not a haughty, strong and brilliant egoistic self-culture enthroning itself upon an enslaved humanity is the divine way of supermanhood.

(CWSA, Vol. 13, pp. 156-57)

## **THOSE WHO HAVE EYES TO SEE**

Sometimes also a force appears to which we can no longer apply the description of genius without being hopelessly inadequate in our terminology. Then those who have eyes to see, bow down and confess the Avatar. For it is often the work of the Avatar to typify already, partly or on the whole, what Nature has not yet effected in the mass or even in the individual, so that his passing may stamp it on the material ether in which we live.

(CWSA, Vol. 12, p. 119)

### ONE ROAD AND NOT THREE

“There is no other way than this.” By this expression it is not intended that Karmayoga is the only path of salvation for all men, but that the renunciation of desire is essential to salvation; every Yogin, be he Jnani, Bhakta, or Karmi, must devote whatever work he may be doing to the Eternal. To the Karmayogin indeed this path is the only possible way; for it is the *swabhava* or nature of a man which decides the way he shall take. If a born Jnani becomes the disciple of a great Bhakta, however submissively he may accept his Master’s teachings, however largely he may infuse his Jnana with Bhakti, yet eventually it is the way of Jnana he must take and no other. For that is his *swabhava* or nature, his *dharma* or the law of his being. If the Brahmin predominates in him, he will be drawn into Jnana; if the Kshatriya, into works; if the Sudra or Vaisya, the child or woman, to Bhakti. If he is born saint or avatar, he will harmonize all three, but still with one predominant over the others and striking the main note of his life and teaching. It is always the predominance of one or other, not its unmixed control, which decides the path; for as with the Karmayogin, the devotion of works to God brings inevitably the love of God, and love gives knowledge, so it is with the Bhakta; the love of God will of itself direct all his works to God and bring him straight to knowledge. So it is even with the Jnani; the knowledge of the Brahman means delight in Him, and that is Bhakti; and this love & knowledge cannot let him live to himself but will make him live to Brahman, and that is divine Karma. The three paths are really one, but the Jnani takes the right hand, the Bhakta the left hand and the Karmayogin walks in the middle; while on the way each prefers his own choice as best and thinks the others inferior, but when they reach the goal, they find that none was inferior or superior, but it was one road they were following which only seemed to be three.

(CWSA, Vol. 17, pp. 200-01)

### IT IS NOT SUFFICIENT TO WORSHIP

The Hindu discipline of spirituality provides for this need of the soul by the conceptions of the Ishta Devata, the Avatar and the Guru. By the Ishta Devata, the chosen deity, is meant, — not some inferior Power, but a name and form of the transcendent and universal Godhead. Almost all religions either have as their base or make use of some such name and form of the Divine. Its necessity for the human soul is evident. God is the All and more than the All. But that which is more than the All, how shall man conceive? And even the All is at first too hard for him; for he himself in his active consciousness is a limited and selective formation and can open himself only to that which is in harmony with his limited nature. There are things in the All which are too hard for his comprehension or seem too terrible to his sensitive emotions and

covering sensations. Or, simply, he cannot conceive as the Divine, cannot approach or cannot recognise something that is too much out of the circle of his ignorant or partial conceptions. It is necessary for him to conceive God in his own image or in some form that is beyond himself but consonant with his highest tendencies and seizable by his feelings or his intelligence. Otherwise it would be difficult for him to come into contact and communion with the Divine.

Even then his nature calls for a human intermediary so that he may feel the Divine in something entirely close to his own humanity and sensible in a human influence and example. This call is satisfied by the Divine manifest in a human appearance, the Incarnation, the Avatar — Krishna, Christ, Buddha. Or if this is too hard for him to conceive, the Divine represents himself through a less marvellous intermediary, — Prophet or Teacher. For many who cannot conceive or are unwilling to accept the Divine Man, are ready to open themselves to the supreme man, terming him not incarnation but world-teacher or divine representative.

This also is not enough; a living influence, a living example, a present instruction is needed. For it is only the few who can make the past Teacher and his teaching, the past Incarnation and his example and influence a living force in their lives. For this need also the Hindu discipline provides in the relation of the Guru and the disciple. The Guru may sometimes be the Incarnation or World-Teacher; but it is sufficient that he should represent to the disciple the divine wisdom, convey to him something of the divine ideal or make him feel the realised relation of the human soul with the Eternal.

The sadhaka of the integral Yoga will make use of all these aids according to his nature; but it is necessary that he should shun their limitations and cast from himself that exclusive tendency of egoistic mind which cries, “My God, my Incarnation, my Prophet, my Guru,” and opposes it to all other realisation in a sectarian or a fanatical spirit. All sectarianism, all fanaticism must be shunned; for it is inconsistent with the integrity of the divine realisation.

On the contrary, the sadhaka of the integral Yoga will not be satisfied until he has included all other names and forms of Deity in his own conception, seen his own Ishta Devata in all others, unified all Avatars in the unity of Him who descends in the Avatar, welded the truth in all teachings into the harmony of the Eternal Wisdom.

Nor should he forget the aim of these external aids which is to awaken his soul to the Divine within him. Nothing has been finally accomplished if that has not been accomplished. It is not sufficient to worship Krishna, Christ or Buddha without, if there is not the revealing and the formation of the Buddha, the Christ or Krishna in ourselves. And all other aids equally have no other purpose; each is a bridge between man’s unconverted state and the revelation of the Divine within him.

**BHAGAVATA, BHAKTA, BHAGAVAN**

Dharma is generally spoken of as something eternal and unchanging, and so it is in the fundamental principle, in the ideal, but in its forms it is continually changing and evolving, because man does not already possess the ideal or live in it, but aspires more or less perfectly towards it, is growing towards its knowledge and practice. And in this growth dharma is all that helps us to grow into the divine purity, largeness, light, freedom, power, strength, joy, love, good, unity, beauty, and against it stands its shadow and denial, all that resists its growth and has not undergone its law, all that has not yielded up and does not will to yield up its secret of divine values, but presents a front of perversion and contradiction, of impurity, narrowness, bondage, darkness, weakness, vileness, discord and suffering and division, and the hideous and the crude, all that man has to leave behind in his progress. This is the *adharmā*, not-dharma, which strives with and seeks to overcome the dharma, to draw backward and downward, the reactionary force which makes for evil, ignorance and darkness. Between the two there is perpetual battle and struggle, oscillation of victory and defeat in which sometimes the upward and sometimes the downward forces prevail. This has been typified in the Vedic image of the struggle between the divine and the Titanic powers, the sons of the Light and the undivided Infinity and the children of the Darkness and Division, in Zoroastrianism by Ahuramazda and Ahriman, and in later religions in the contest between God and his angels and Satan or Iblis and his demons for the possession of human life and the human soul.

It is these things that condition and determine the work of the Avatar. In the Buddhistic formula the disciple takes refuge from all that opposes his liberation in three powers, the *dharma*, the *saṅgha*, the Buddha. So in Christianity we have the law of Christian living, the Church and the Christ. These three are always the necessary elements of the work of the Avatar. He gives a dharma, a law of self-discipline by which to grow out of the lower into the higher life and which necessarily includes a rule of action and of relations with our fellowmen and other beings, endeavour in the eightfold path or the law of faith, love and purity or any other such revelation of the nature of the divine in life. Then because every tendency in man has its collective as well as its individual aspect, because those who follow one way are naturally drawn together into spiritual companionship and unity, he establishes the *saṅgha*, the fellowship and union of those whom his personality and his teaching unite. In Vaishnavism there is the same trio, *bhāgavata*, *bhakta*, *bhagavān*,— the *bhāgavata*, which is the law of the Vaishnava dispensation of adoration and love, the *bhakta* representing the fellowship of those in whom that law is manifest, *bhagavān*, the divine Lover and Beloved in whose being and nature the divine law of love is founded and fulfils itself. The Avatar represents this third element, the divine personality, nature and being who is the soul of the dharma and the *saṅgha*, informs them with himself, keeps them living and draws men towards the felicity and the liberation.

**“ TO THE ALL-BEAUTIFUL ”**  
**CORRESPONDENCE WITH SRI AUROBINDO**

Sri Aurobindo —

How do you find this simple tribute to the Mother?

**TO THE ALL-BEAUTIFUL**

So very poor the life I brought You, Sweet!  
But my whole poverty enclasped Your feet.  
Though such dim treasure none would precious call,  
A miser I had been, hoarding it all  
For You alone, to keep or cast away —  
Since never even with this common clay  
Could I serve lesser beauty. My earth-cup  
You have transfigured now, brimming it up  
With sudden nectar of eternity.  
Miraculous, O Love, Your alchemy  
Of quiet heaven-creative luminous  
Eyes that evoke the hidden god in us  
Through drossiest self-offering on our part!  
Out of the candle-flicker of each heart  
You build a calm inviolable sun  
Rayed with enormous time-oblivion!  
For we but grow an image of the light  
Whose dream has quickened our clay-captive night,  
The rapture that has lured our blind distress.  
O Splendour, You have made my raggedness  
Reveal through every shameful tatter and hole  
A luminous immortality of soul!

Sri Aurobindo's comment:

It is very fine.

30 January 1934

AMAL KIRAN  
(K. D. SETHNA)

# POLITICS, SOLID STATE AND THE HIGGS

[This text by *David Miller*, Department of Physics and Astronomy, University College, London, UK, has been sourced from the Internet: <http://www.phy.uct.ac.za/courses/phy400w/particle/higgs3.htm> dated 21.12.08]

## 1. The Higgs Mechanism

IMAGINE a cocktail party of political party workers who are uniformly distributed across the floor, all talking to their nearest neighbours. The ex-Prime Minister enters and crosses the room. All of the workers in her neighbourhood are strongly attracted to her and cluster round her. As she moves she attracts the people she comes close to, while the ones she has left return to their even spacing. Because of the knot of people always clustered around her she acquires a greater mass than normal, that is, she has more momentum for the same speed of movement across the room. Once moving she is hard to stop, and once stopped she is harder to get moving again because the clustering process has to be restarted.

In three dimensions, and with the complications of relativity, this is the Higgs mechanism. In order to give particles mass, a background field is invented which becomes locally distorted whenever a particle moves through it. The distortion — the clustering of the field around the particle — generates the particle's mass. The idea comes directly from the physics of solids. Instead of a field spread throughout all space a solid contains a lattice of positively charged crystal atoms. When an electron moves through the lattice the atoms are attracted to it, causing the electron's effective mass to be as much as 40 times bigger than the mass of a free electron.

The postulated Higgs field in the vacuum is a sort of hypothetical lattice which fills our Universe. We need it because otherwise we cannot explain why the Z and W particles which carry the weak interactions are so heavy while the photon which carries electromagnetic forces is massless.

## 2. The Higgs Boson

Now consider a rumour passing through our room full of uniformly spread political workers. Those near the door hear of it first and cluster together to get the details, then they turn and move closer to their next neighbours who want to know about it too. A wave of clustering passes through the room. It may spread to all the corners or it may form a compact bunch which carries the news along a line of workers from the door to some dignitary at the other side of the room. Since the information is



carried by clusters of people, and since it was clustering that gave extra mass to the ex-Prime Minister, then the rumour-carrying clusters also have mass.

The Higgs boson is predicted to be just such a clustering in the Higgs field. We will find it much easier to believe that the field exists, and that the mechanism for giving other particles mass is true, if we actually see the Higgs particle itself. Again, there are analogies in the physics of solids. A crystal lattice can carry waves of clustering without needing an electron to move and attract the atoms. These waves can behave as if they are particles. They are called phonons and they too are bosons.

There could be a Higgs mechanism, and a Higgs field throughout our Universe, without there being a Higgs boson. The next generation of colliders will sort this out.

*To the uninitiated, all this talk of new particles can be baffling, admits physicist and Nobel Laureate Frank Wilczek of MIT. (. . .) A better way to appreciate the importance of the LHC, Wilczek suggests, is to remember that, according to quantum mechanics, those particles are also waves on a sea that pervades the universe — and we are like fish in that sea, slowly cottoning to what's around us. "The equations tell us that what we perceive as empty space is in fact not empty," Wilczek explains. "It's a material that changes the way things behave. We're embedded in this medium, we know it's there, but we don't know what it's made of. The LHC is the instrument that's going to tell us."*

*Discover Magazine*  
January 2009, p. 22

# THE LARGE HADRON COLLIDER

## A GIANT PARTICLE ACCELERATOR

### 1. Introduction

THE Large Hadron Collider, LHC in short, is a particle accelerator which will probe deep into matter by colliding two very high energy hadron beams (protons or lead nuclei). The LHC machine at CERN [1], Geneva, is expected to be operational by early 2009. The LHC in fact will accelerate two beams moving in opposite directions and make them collide head-on at four designated locations surrounded by huge detectors — as large as 15 to 20-metre tall buildings. Every second there will be about six hundred million collisions of protons — a collision means one proton colliding with another proton. Keeping track of the thousands of particles produced in these collisions will be a mammoth task for the detectors. There are several thousand physicists and engineers from all over the world taking part in the construction of the LHC and its detectors. As the LHC is getting ready to circulate the beams of particles through its twenty-seven kilometre-long pipe, operating at about 300 degrees below room temperature (minus 270 degrees Celsius, even colder than outer space), excitement is mounting regarding what will be discovered at the LHC. Some of the details are narrated below.

Mankind is ever curious to know the ultimate structure of matter and the forces responsible for its stability. Matter as we know is made up of atoms or compounds of atoms called molecules. Towards the end of the nineteenth century, in 1897, J. J. Thomson was able to identify an electron, a negatively charged particle, as a fundamental constituent of the atom from his study of the passage of a high-voltage electric current through a very low-pressure gas inside a glass tube — very similar to our modern TV picture tube. Fourteen years later, in 1911, Rutherford carried out a historic experiment by shooting massive alpha particles (nuclei of helium atoms) from a radioactive source on a thin gold foil. This led to the startling discovery that the entire mass of an atom is concentrated at its centre now called the atomic nucleus [2]. A nucleus is about one hundred thousand times smaller in size than an atom. Between the electron and the nucleus there is empty space. Atoms themselves are very tiny in size, so small that it would take one hundred million atoms to make a one-centimetre line. Thus the picture of an atom is that of a positively charged nucleus at the centre surrounded by negatively charged electrons moving round the nucleus. To get an idea of the gap between the electrons and the nucleus, let us imagine the size of a nucleus to be like that of a tennis or cricket ball — about seven centimetres in diameter; the electrons will then be at a distance of about seven kilometres — with nothing in between. This means that there is a vast empty space between the electrons and the

nucleus inside an atom. Further investigations revealed that the nucleus consists of two types of particles: positively charged protons and electrically neutral neutrons. Thus by the early 1930s we had a picture of three building blocks of the atom: proton, neutron and electron, all with negligible sizes compared to the atom.

## 2. Accelerators – an introduction

One needs to repeat Rutherford-type of experiments to probe deeper into matter but with projectiles of much higher kinetic energies. If the energy is not high enough then the projectile will just get scattered off the target nucleus without penetrating it. The need for higher energies also arises if one is looking for the production of some massive particles — like the Higgs and the superparticles (discussed later) as in LHC. The standard technique to accelerate charged particles like protons and electrons is to subject them to controlled and repeated applications of electric and magnetic fields in accelerators.

Accelerators [3] are of two types: a **circular** accelerator in which a beam of particles travels repeatedly round a loop picking up energy at each lap, and a **linear** one when the beam travels from one end to the other in a straight path — the longer the machine, the higher the final energy.

There are four main components to an accelerator:

- (a) **Particle source:** One needs a source of particles to be accelerated; for example a chamber filled with hydrogen gas is needed for a proton accelerator. Hydrogen atoms are ionised through electric discharge into electrons and protons and then separated by the application of an electric field.
- (b) **Electric field:** This is needed to provide acceleration to a beam of charged particles.
- (c) **Bending magnets (Dipoles):** These magnets bend the path of a beam in a desired way; and  
**Focussing magnets (Quadrupoles):** These magnets keep particles together within the beam. The higher the energy of a particle the stronger will the magnetic field need to be to steer the beam along its path.
- (d) **Vacuum beam pipe:** Particles travel inside a metal pipe which is kept at an ultra high vacuum to minimise the loss of beam particles through collisions with air molecules. Vacuum achieved inside the beam pipe at the LHC is higher than that existing in outer space.

### Units of energy

A few words on the choice of units of energy will be in order. Energy has many units: **joules** for mechanical energy, **calories** for heat energy and **kilowatt-hours** for

electrical energy. They are all related by conversion factors: 1 calorie = 4.19 joules, 1 kilowatt-hour = 3,600,000 joules. In particle physics it is customary to use **electron-Volt** (eV) as the unit of energy and the following related units: MeV for Mega-electron-Volt (1 MeV = 1,000,000 eV), GeV for Giga-electron-Volt (1 GeV = 1,000 MeV) and TeV for Tera-electron-Volt (1 TeV = 1,000 GeV). One electron-Volt is defined as the energy acquired by a particle carrying one unit of charge (like an electron or a proton) when accelerated by a voltage of one volt. It is a very small energy unit:  $1 \text{ eV} = 1.6 \times 10^{-19}$  joules. Since the mass ( $m$ ) and energy ( $E$ ) are related through Einstein's relation  $E = mc^2$ , where  $c$  is the speed of light ( $c = 300,000 \text{ km/sec}$ ), the unit of energy gets related to the unit of mass as well:  $1 \text{ eV}/c^2 = 1.8 \times 10^{-36}$  kilogram. Proton and electron mass in these two units are:

$$\text{mass of proton} = 938 \text{ MeV}/c^2 = 1.7 \times 10^{-27} \text{ kg};$$

$$\text{mass of electron} = 0.5 \text{ MeV}/c^2 = 0.9 \times 10^{-30} \text{ kg}.$$

Thus electrons and protons have extremely tiny masses as well as vanishingly small sizes. It may be worth mentioning here that if the electron was heavier than it actually is, atoms and all matter would be reduced in size; this would indicate that Nature has some purpose in fixing these masses.

### More on the LHC machine

Accelerators constructed before the 1950s were of low energies, in the MeV range or less, and only in the 1950s beams of protons in the GeV range became available at several laboratories: Brookhaven National Laboratory and Berkeley (USA), Dubna (Russia) and CERN (Geneva). With the continuing development of accelerator technology, the energy achieved for the proton beam during the last decade touched one TeV (Fermilab, USA). The LHC team consisting of thousands of engineers and physicists from more than 50 countries, including India, (along with the involvement of many industries) worked for nearly two decades on intensive R&D, design and construction of the machine, and is now ready to accelerate protons up to seven TeV [4]. The LHC machine is a giant particle accelerator housing four huge experiments besides being the world's highest energy collider of hadrons. The LHC tunnel of 3.8-metre diameter is buried 50 to 175 metres below the ground. It is on the outskirts of Geneva and crosses the Switzerland-France border several times. Some trillions (one followed by twelve zeros) of protons will be travelling in the 27-km ring with almost the speed of light and making about 11,000 rounds a second. The strong magnetic field (9 tesla) from superconducting magnets kept at minus 270 degrees Celsius will bend and steer the beams around the ring: one bunch clockwise and the other anticlockwise. The phenomenon of superconductivity allows some materials to conduct electricity nearly without resistance or any energy loss and superconducting magnets reduce considerably the power requirement of the LHC. And very low temperatures are required because these materials become superconductors only at very low temperatures.

### 3. Detectors, data storage and analysis

Besides the much-needed high-energy accelerators, the following important tools are most essential to perform experiments and obtain results: detectors, data storage and analysis. The aim of a detector is to detect all particles emerging from a collision, tracking them, measuring their energies and their identities. The LHC detectors are the biggest and most precise detectors ever built: spatial positions of particles will be measured to the precision of a millionth of a metre (i.e., micrometre) and timing to a few billionths of a second (i.e., nanosecond). There are many components to a detector. The three main parts are: Tracker — to track the path of a particle; Calorimeter — to stop, absorb and measure the energy of a particle; Particle Identifier — to identify the type of particle.

These detectors surrounding the four collision zones are known by their acronyms: ATLAS, CMS, LHCb and ALICE. The first two, ATLAS and CMS, are general purpose detectors to study both proton-proton as well as lead-lead collisions; the third one, LHCb, is a specialised detector for proton-proton collisions and the fourth one, ALICE, is also a specialised detector but for lead-lead collisions. The sizes of these detectors are:

ATLAS	: 46 m (long) x 25 m (wide) x 25 m (high), weight 7,000 tonnes
CMS	: 21 m (long) x 15 m (wide) x 15 m (high), weight 12,500 tonnes
LHCb	: 21 m (long) x 13 m (wide) x 10 m (high), weight 5,600 tonnes
ALICE	: 26 m (long) x 16 m (wide) x 6 m (high), weight 10,000 tonnes

Here the unit 'm' stands for metre. The sizes of these detectors are mind boggling. A few words on detector size would be in order. Over the last four decades, detector size has grown from the size of a room to the size of a four to five-storey tall building. The main reason for this growth is the large increase in the energy of collisions. This results in producing particles with much higher energies, requiring the detectors to be huge in size besides having to be more complex and sensitive.

All detectors are ready and waiting to detect collisions in the LHC ring. Nearly ten thousand scientists (12 from India) from about 200 institutions belonging to more than 40 countries are participating in these experiments. It has taken fifteen years or more to fabricate these sophisticated detectors. Now each of these detectors will record more than one petabyte (one million gigabytes) of data every year which is like filling more than 100,000 DVDs. A global computing infrastructure called GRID has been specifically set up to handle and analyse this huge accumulation of data. The GRID will utilise the computing power and storage capacity (hard disks) of tens of thousands of computers belonging to different participating laboratories distributed across the globe. The GRID will integrate these computers through the Internet to work like one single giant computer. Through the GRID physicists will not only access the LHC data sitting at their home institutions but also analyse the data by using the computing power of the GRID.

#### 4. Building blocks of matter – the Standard Model

Let us now briefly outline the physics behind the understanding of matter. The beginning of the twentieth century, from around 1900 to about 1930, brought in two revolutionary theories that changed the face of physics: the Special theory of Relativity (as well as the General theory) and the quantum theory. Through these two theories one is able to understand the physics of objects that travel very fast — close to the speed of light and also the objects that are very tiny like atoms, protons and electrons. A very fascinating and informative account of this story may be found in the books quoted in ref. [5].

The simple picture of three building blocks of matter — electron, proton and neutron — thought of in the early 1930s did not last long. From the 1930s to the beginning of the 1950s experiments carried out with cosmic rays [6] led to discoveries of several new particles. From the 1950s onwards particle physics was on a fast track due to the availability of man-made high-energy accelerators. A series of experiments conducted at Stanford (USA) during the 1960s with high energy electrons colliding with protons led to the discovery of pointlike (meaning structureless) constituents of protons. These constituents are named **quarks**: up (in short ‘u’) and down (‘d’). Quarks are fractionally charged particles: if the electron is treated as having a minus one charge (-1), then the u quark has (+2/3) charge and the d quark (-1/3). Protons and neutrons, in this simplistic picture, are made out of three quarks each: proton as ‘uud’ quarks with charge =  $+2/3 + 2/3 - 1/3 = +1$ , and neutron as ‘udd’ with charge =  $+2/3 - 1/3 - 1/3 = 0$ ; the charges are as expected. The period between 1970 and the 1990s saw another big boost in accelerator technology resulting in the construction of high-energy electron-positron as well as proton-antiproton colliders (positron and antiproton are antiparticles respectively of electron and proton; see the section on antimatter). Experiments carried out with these accelerators led to the firm conclusion that there are in all six quarks in nature. These six quarks are: up (+2/3), down (-1/3), charm (+2/3), strange (-1/3), top (+2/3) and bottom (-1/3) — the bracketed numbers refer to their fractional charges with respect to the electron — and in short they are written as u, d, c, s, t and b. The top is the heaviest of the six quarks, weighs nearly two hundred times more than the hydrogen atom. How Nature packs such enormous energy into a volume that is immeasurably tiny is one of her great mysteries! Like the quarks, the electron too is a member of a bigger family of six particles called **leptons**. In this family there are three neutral particles called neutrinos and three charged particles — each with a minus one charge — named electron, muon and tau. The neutrinos are almost massless (the exact value of the tiny mass is still unknown) and tau is the heaviest of the lot. The building blocks of matter in the Standard Model [7] thus consist of six quarks and six leptons. The visible matter that we see around us is formed out of two quarks (up and down) and two leptons (electron and its associated neutrino). Additional quarks and leptons are produced only in collisions of high-energy

particles. Now the forces acting on quarks are such that they do not exist as free particles like an electron or a proton, but they combine (i) in groups of three to form proton, neutron and related particles called baryons, and (ii) in groups of two to make particles known as mesons like pion, kaon etc., with hadron as a generic name for both mesons and baryons.

Matter particles — quarks and leptons — are subjected to four basic forces. In the descending order of strength they are: strong, electromagnetic, weak and gravitational. Forces are due to an exchange of particles called force carrier [8]. The strong force mediated by a particle called **gluon** is responsible for the compactness of atomic nuclei and for confining quarks inside protons and neutrons. The electromagnetic force is about one hundred times weaker than the strong force and is experienced by all electrically charged particles; this force is due to the exchange of a massless particle called **photon** which is also responsible for our light everywhere. The weak force, which is much weaker than the electromagnetic force, is responsible for radioactive decays, nuclear fusion in the sun's core etc.; its force carriers are two very heavy particles called **W** and **Z** with masses nearly ninety times that of a proton. The weak force is truly feeble because of the massive force carriers and this helps in the slow burning of the sun so essential for life on earth. If the **W** particle had been much heavier or lighter than what it is the life on earth would have been very difficult. This again tells us that nature means business while fixing masses to these particles. Now the weakest of all the four forces is the gravitational force and it is so weak that it can safely be ignored in particle physics without loss of any precision.

Matter particles like quarks and leptons are called **fermions** after an Italian physicist E. Fermi and force carrier particles like gluons, photons, **W**, **Z**, Higgs and gravitons as **bosons** after the Indian physicist S. N. Bose. Fermions and bosons differ in their intrinsic property called **spin** (or intrinsic angular momentum): fermions have a half integer spin while bosons have an integer number for spin: quarks and leptons have spin  $\frac{1}{2}$ , while photon, **W** and **Z** have spin 'one'. The spin is a manifestation of the relativistic quantum mechanics and cannot be visualised by a classical model. A spinning charged particle, like an electron or proton, acts like a small magnet with its magnetic axis as its axis of spin.

### Enter the Higgs

History teaches us that the relation between mass and weight was given by Newton and the equivalence between mass and energy by Einstein, but the meaning of mass itself has been a mystery. The Standard Model for the first time attempted to explain the acquisition of this mysterious quantity 'mass' by particles through what is called the **Higgs mechanism**. In simple language the Higgs mechanism may be described as follows. To start with, it is assumed that our universe started with a **Big Bang** some fourteen billion years ago and the two basic interactions, electromagnetic and

weak, were identical with massless force carriers. With the passage of time the universe started expanding and cooling. As the temperature fell below some critical value, a new type of field suddenly developed everywhere in the universe. This field is called the **Higgs field** and its associated particle, the **Higgs boson**. The particles W and Z, so far lying dormant and massless, started interacting with this field and this resulted in giving masses to these particles. On the other hand, the photon remained massless as it did not interact with this field. Thus the two forces electromagnetic and weak got separated from each other and the initial symmetry was broken. This mechanism was proposed by Peter Higgs and independently by Robert Brout and François Englert in the early 1960s. A question that comes immediately to our mind is: do we understand this sudden appearance of the Higgs field out of nowhere — as if from a magician's hat? Instead of answering it directly we give below a parallel example from our everyday life.

We know that a ferro-magnet such as iron when heated above a certain critical value (about 800 degrees Celsius), called Curie temperature, loses its magnetisation altogether. When this material is cooled again it regains its magnetic field. The suddenness with which the magnetic field appears below a certain temperature is very similar to the sudden manifestation of the Higgs field described earlier. Now let us look at the symmetry breaking aspect. As mentioned earlier, a spinning electron acts like a magnet with its magnetic axis being the same as its axis of spin. In a non-magnetised iron all spin axes of electrons point in random directions resulting in no magnetism, however there is a rotational symmetry in three dimensional space meaning whichever direction one looks at, it is the same and there is no preferred direction. But in a magnetised iron all electrons will spin in the same direction and that is why there is magnetism. This means that there is a preferred direction and the rotational symmetry disappears. This is a classic example of the disappearance of hidden symmetry when one cools the metal and it is very much like the Higgs mechanism where also the symmetry is broken with the acquisition of mass by W and Z while the photon remains massless. So the Higgs mechanism does after all sound plausible.

Do we have any idea about the mass of the Higgs particle? The Standard Model has no predictive value for the Higgs mass. The previous experimenters at CERN with the Large Electron-Positron collider, the original precursor of the 27-km tunnel where now the LHC is housed, have made a detailed search for Higgs and came to the firm conclusion that the mass of the Higgs, if it exists, is more than one hundred twenty times the mass of a hydrogen atom. Now the theory does give us some idea about the rate of production of Higgs (technically it is called production cross section) in proton-proton collisions at the LHC: it is expected to be produced only in just one out of every ten-trillion collisions (one followed by thirteen zeros). Therefore with nearly 600 million collisions a second we can expect a few particles of Higgs per day. Since the Higgs particle is expected to be very massive, the LHC is designed to achieve the maximum possible energy with the available technology to search for the Higgs



up to a mass of about one thousand times the mass of a hydrogen atom. And because the expected production rate is extremely low each beam is packed with trillions of protons to achieve very high collision rates of about 600 million collisions per second.

To summarise, the Standard Model deals with six quarks, six leptons and three basic forces with the Higgs mechanism to give masses to these particles. It is able to describe electromagnetic and weak force as a manifestation of one single force called electro-weak force.

Six quarks : up, down, charm, strange, top and bottom

Six leptons : electron, muon, tau and three neutrinos

Three forces : strong, electromagnetic and weak

Force carriers : gluons, photons and (W, Z) particles

## **Beyond the Standard Model**

The Standard Model has been very successful in describing many phenomena and processes in particle physics so far and its only missing ingredient is the Higgs. Detecting Higgs would be a very big step forward but that will not be the end of the story. There are many important questions that will still remain unanswered. For example, why are there only six quarks and six leptons? why do the quarks and leptons have the masses they have? etc. The Standard Model is thought to be a part of a bigger theory which hopefully will explain all of physics from a few basic principles. There are several theories which go beyond the Standard Model and we discuss below two promising scenarios.

### **Supersymmetry**

One such scenario is the so-called grand unified theories (GUTs in short) which try to treat electromagnetic, weak and strong interactions together — physicists call it unification of forces. Experiments have substantiated the fact that with increasing energy the strong force becomes weaker while the electromagnetic and weak forces become stronger thereby suggesting that these three forces might unite at some very high energy — meaning unification of forces. Supersymmetry (SUSY for short) is one of the popular solutions for unification. It is based on a possible symmetry between the two basic types of particles: fermions and bosons. Supersymmetry requires every fermion to have a partner which is a boson. These partners are called superparticles of quarks and leptons, in short squarks and sleptons; these particles are expected to be heavy otherwise they would have been detected in earlier experiments. Similarly the force carriers will have fermionic partners. If this model is correct the LHC will have a jolly good time in detecting these large numbers of superparticles.

## String theory and its hidden dimensions

String theory starts with a radical idea that elementary particles are like very tiny loops of vibrating strings — so tiny that it is beyond our imagination (in the Standard Model they are treated as pointlike particles i.e. with zero sizes). This theory also brings in the seemingly bizarre idea of six additional dimensions besides our usual three dimensional world (giving length, breadth and height to an object) with time as the fourth dimension introduced through the theory of Relativity. With this approach the string theory finds a way to unify for the first time all the known four forces including gravity. Now the question is where are the six additional dimensions? It is theorised that these extra dimensions are curled up so small — very much smaller than the size of a proton — that they remain invisible to us. There are several elementary examples given in the literature of subatomic particle physics to explain graphically these hidden dimensions; one such example is as follows. Imagine a very thin and long hollow pipe. From a distance it appears to have only one dimension i.e., length. If a small ball just big enough to enter the pipe is thrown inside it will move only along the pipe in one dimension. But a mini-ant crawling inside the pipe will feel the two dimensions in its movement, while a mini-mosquito flying inside can move in all the three dimensions. Similarly the extra dimensions of the string theory are expected to become apparent only when it is approached closely by tiny objects. Collisions at the LHC are expected to have effects of the hidden dimensions if they exist and the experiments will try to identify and detect these effects.

## 5. Big Bang model – an introduction

Let us now move to cosmology and see what one can learn from high-energy collisions at the LHC. The idea regarding the origin of the universe started taking shape only in 1929 when the astronomer Edwin Hubble made an epoch-making observation that distant galaxies are moving rapidly away from each other thereby implying that the universe is expanding. These observations suggested that there was a time when the universe was infinitesimally small, very hot and dense. This was the beginning of our universe and the beginning of space, matter and time some **fourteen billion years** ago. The model describing all these is known as the **Big Bang**. Its composition to start with was a very hot gas of particles and light radiation. As the universe expanded and cooled the radiation got stretched and became longer in wavelengths. Today according to the Big Bang model this radiation (or the relic radiation) is expected to have a wavelength of the order of one millimetre i.e. in the microwave region of the electromagnetic spectrum. This relic microwave radiation was accidentally detected in 1965 by Penzias and Wilson while testing a very sensitive microwave detector at the Bell Telephone Laboratories in the USA. They found a persistent noise in their detector which was eventually identified as being due to the

universal microwave background radiation. This was the first concrete evidence in support of the Big Bang model. Since then many studies have been made including the Cosmic Background Explorer satellite (in short COBE) and all these confirmed the prediction of the Big Bang cosmology.

### Quark–gluon plasma

The two beams colliding head-on at the LHC will recreate the conditions that existed at the very early universe — less than a billionth of a second — after the Big Bang. Temperature generated in such collisions is nearly two thousand billion degrees which is more than one hundred thousand times hotter than the core of the sun. At such high temperatures quarks which are normally held together inside protons or neutrons by gluons become free within the minuscule space of the colliding region. This creates a new state of matter with free quarks and gluons called **quark-gluon plasma**. It lasts only for a very short while, and thereafter quarks and gluons regroup and condense into protons, neutrons and atomic nuclei etc., belonging to ordinary matter. This formation of quark-gluon plasma is more efficient with collisions of heavier nuclei and this is the reason for the LHC to collide beams of lead-ions with lead-ions. There are already indications for quark-gluon plasma from the earlier experiments at CERN and at Relativistic Heavy Ion Collider (RHIC) at Brookhaven. Now the three experiments — ALICE, ATLAS and CMS — will study in much more detail the formation of quark-gluon plasma and its properties.

### Dark Energy and Dark Matter

The current understanding of the universe tells us that visible matter consisting of galaxies, stars and planets accounts for only a tiny 5% of the universe. Where then is the other 95%? The rest is made up of two mysterious ‘something’ called ‘dark energy’ and ‘dark matter’.

- (a) **Dark Energy:** As per the Big Bang mechanism the rate of expansion of the universe was expected to slow down with time because of the pull of gravity. But the universe is expanding at a much faster rate as if there is some kind of repulsive force which is pushing it apart. This ‘something’ cosmologists call ‘dark energy’. It is called ‘dark’ because it does not emit any visible light. This dark energy constitutes nearly 70% of the universe. Nothing much is known about this mysterious substance.
- (b) **Dark Matter:** This forms the remaining 25% of the universe. The hint of dark matter came from the observations of the rotational speeds of stars. A typical galaxy contains nearly a hundred billion stars. The entire structure is known to rotate/spin about an axis passing through its centre just as our earth spins around its axis. Measurements of rotational speeds of stars reveal

that galaxies spin faster than expected from the known amount of visible matter in the galaxy. This excess spin could be understood if there were a large quantity of invisible matter. This new invisible matter does not give off any light and hence it is named 'dark matter'. Now what is dark matter? One of the proposals is that it contains supersymmetric particles with zero electric charge (known as LSP or the lightest supersymmetric particle). We have to wait for the detection or otherwise of these particles at the LHC.

## Antimatter

It was in the year 1928 that Paul Dirac developed the famous theory of relativistic quantum mechanics by merging successfully special relativity with quantum mechanics. The outcome was the prediction of a completely new type of particle altogether which came to be known as **antiparticle**. Four years later in 1932 the first antiparticle called positron was discovered in cosmic rays. A positron is an antiparticle of an electron with the property that its mass is the same as its partner particle electron but with opposite charge; the second property and the most spectacular one is that when particle and antiparticle meet they annihilate each other releasing the energy equivalent to the sum of their masses. It is now an experimental fact that every particle has a corresponding antiparticle. But what is antimatter? As atoms formed out of particles lead to matter, similarly atoms containing antiparticles are called antimatter. As an example, an antihydrogen atom will have one positron moving around an antiproton (in hydrogen atom it is an electron that moves around a proton).

Experiments as well as theory tell us that the creation of a particle (i.e., matter) and antiparticle (i.e., antimatter) takes place always together. Therefore at the very beginning of the Big Bang event, matter and antimatter should have been created in equal amounts. But it appears that we live in a universe made entirely of matter. Several experimental attempts have failed to detect any trace of antimatter in the universe; a search is still on using space probes. Therefore a big puzzle before us is where has all the antimatter disappeared? A possible solution to the matter dominance may be found in the theoretical framework of the Standard Model, which allows a subtle difference between the way a particle and an antiparticle decay. A tiny imbalance between matter and antimatter had already been indicated in 1964 through decaying of particles called 'kaon' (or 'K') and 'antikaon'; these particles are made of two quarks each: 'down' or 'strange' quarks and antiquarks. A large asymmetry between matter and antimatter is expected from bottom particle (or 'B') and antibottom particle; in these a strange quark is replaced by a heavy bottom quark. A bottom particle is nearly ten times heavier than a kaon. The experiments — LHCb, ATLAS and CMS — will specifically study differences in decay properties of these 'B' particles which will be produced in plenty at the LHC — more than one thousand billion a year.

## 6. A question of safety in LHC collisions

There have been several media reports as well as lawsuits filed against CERN regarding the danger posed by the start of LHC for a possible production of microscopic black holes at these energies which may spell disaster for the earth. The LHC Safety Assessment Group (LSAG) of CERN has updated their earlier report and reaffirmed that “LHC collisions present no danger”. It is argued that cosmic rays are particles which are accelerated to much higher energies than those at the LHC and they collide all the time with earth’s atmospheric nuclei without posing any danger to our planet. The report finally concludes that “There is no basis for any concern about the consequences of new particles or form of matter that could possibly be produced by the LHC” (for more details visit CERN webpage).

## 7. Summary

In this article we have attempted to give some flavour of the physics, by no means complete, to be expected from the Large Hadron Collider at CERN. The LHC is expected to shed light on how particles get their masses through the Higgs, the missing key link in the Standard Model. By its sheer brute force energy the LHC will simulate the environment that possibly existed at the time of the very early universe by studying the new phase of matter called quark-gluon plasma. The LHC may also reveal the existence of hidden extra dimensions, why the universe we live in consists only of matter, the mystery behind the dark matter, etc. The running of the LHC and its maintenance will be one of the biggest challenges to engineers and physicists for its unprecedented complexities and sophistication. The four giant and delicate detectors fabricated with cutting-edge technology will be recording millions of collisions with a very high spatial and timing precision. The LHC has already made a beginning by successfully circulating proton beam around its 27-km ring on the tenth of September 2008. The first collision of two proton beams or what is called data taking is expected to start in spring 2009 and with this will begin a new era in particle physics. Over the next fifteen years — the expected lifetime of the LHC — nearly ten thousand scientists from all over the globe will be kept engaged with the data. The first physics result is expected after running the LHC for about one year. And till then, . . . let us wait.

S. N. GANGULI

## Notes and References

[1] The name CERN stands for: *Conseil Européen pour la Recherche Nucléaire* (or European Organisation for Nuclear Research). There are twenty European countries as member states of CERN and there are eight with observer status; India has an observer status. To know more about CERN and its research activities visit CERN's website: [www.cern.ch](http://www.cern.ch).

[2] Rutherford was dumbfounded to note that some of the massive alpha particles bounced back from a thin gold foil. He made the following note in his diary: "It was almost as incredible as if you fired a 15-inch shell at a piece of tissue paper, and it came back to hit you."

[3] A television set in our home is a simple example of an accelerator. In it, negatively charged electrons are emitted from a hot wire and then accelerated in a vacuum tube by a strong electric field of several thousand volts. Magnetic fields are then used to sweep the beam across the screen. The screen starts glowing, building up a picture where the beam strikes it. As an example, if the electric field in the TV set is 10,000 volts, then the energy of the electrons hitting the screen is 10,000 electron-Volts. In particle accelerators the energy achieved nowadays is in the range: 1000 MeV to 1000 GeV.

[4] The LHC will also run in the heavy-ion mode, nearly one month a year, colliding two lead nuclei (a lead nucleus contains a total of 208 protons and neutrons) with energy of 2.7 TeV per nucleon (nucleon is a generic name for proton or neutron).

[5] George Gamow: *Thirty Years that Shook Physics* (Dover publications).

Stephen Hawking: *A Brief History of Time*. (Bantam Dell Publishing Group).

Frank Close: *Lucifer's Legacy – The Meaning of Asymmetry* (Oxford University Press).

[6] Cosmic rays are particles entering the earth's atmosphere from outer space. Nearly 95% of them are protons, nearly 4% are helium nuclei and the rest 1% other heavy nuclei. They have fantastic energies up to about  $10^{20}$  electron-Volts (one followed by twenty zeros) and occasionally collide with air-nuclei resulting in a shower of secondary particles.

[7] In 1973 two Japanese physicists Makoto Kobayashi and Toshihide Maskawa proposed a model with six quarks to understand the anomalous decays of neutral Kaons (or 'K'). It is interesting to note that in 1973 only three quarks were known: up, down and strange. It means that they predicted at one go three more quarks! The fourth quark, charm, was discovered in 1974, bottom quark – the fifth – in 1977 and the sixth quark – top – in 1995. This model now forms part of the well-known Standard Model which has been very successful in explaining various physics phenomena. These two physicists very rightly deserved the Nobel Prize and they have been awarded the same for the year 2008.

[8] Historically the concept of force started with the discovery of the law of gravitation by Newton around 1680. This classical concept underwent a change with the introduction of fields by Faraday in the mid 19<sup>th</sup> century for the electric and magnetic forces. Then came the startling proposal from Maxwell around the 1860s that light itself is a propagating electromagnetic field. The next bold step was the introduction of particles representing fields by quantum mechanics in the 1930s. Thus the action of a force is now replaced by the exchange of a particle called 'force carrier'.

## FROM HERE AND THERE

### 1. Prof. Satyen Bose

A LUMINARY of Science, who has become immortal through BOSONS — particles which obey Bose-Einstein Statistics — was like a fun-loving little boy on whom the weight of fame and achievement never rested. Fond of his Esraj — a three-stringed musical instrument — and of good camaraderie (he and Ustad Alauddin Khan savouring Tagore's Centenary Exhibition hand in hand make an enviable picture) he was also a lover of nature. When he came to preside over the Golden Jubilee session of the Indian Science Congress in Delhi, he went to take his tea with his old school-mate sitting at the back . . . and forgot everything. He went to do Physics with Madame Curie in Paris and she did not take him as he did not know French. He sent his paper to Albert Einstein addressing him as master and Einstein got his paper published with Bose as principal author. Einstein published a later paper by himself. Satyen Bose also obtained the theoretical derivation of Plank's Radiation Law. When there was a controversy about Prof. C. V. Raman proposing K. S. Krishnan as Palit Professor in preference to Prof. M. N. Saha, then at Allahabad, Satyen Bose saved the situation by taking Krishnan to Dacca, where he was Professor. According to S. Chandrasekhar, the Nobel Laureate nephew of C. V. Raman, both M. N. Saha and Satyen Bose deserved a Nobel but got only FRS. Nothing however touched Satyen Bose even though his classmate M.N. Saha never got over the hurt caused by C. V. Raman in not inviting him to succeed as Palit Professor of Physics. In a project of his Dacca university students in building science, Prof. Bose came but kept on sitting on a culvert outside inviting all the eighteen-to-twenty-year-old youngsters to come out and enjoy the brilliant colours in the sky. Once when Prof. Bohr was giving a lecture and Prof. Bose was presiding while sitting crosslegged in the chair wearing punjabi and dhoti and was seemingly dozing, suddenly Prof. Bohr got stuck and said, "Maybe Prof. Bose could help." He untangled himself, got up and made straight for the board and wrote the equation as if he was seeing it with eyes closed. This was in Delhi University in 1951 and all the teenaged Physics Honours students swelled with pride and almost hit the roof. This was Satyen Bose the famous scientist and a Renaissance man.

\* \* \*

## 2. Enrico Fermi

Enrico Fermi was a colossus of Physics — he was born to poor parents, who couldn't afford any heating in the house and Enrico kept his hands below his seat to warm them up and turned the pages of the book with his tongue. Later, to enhance his income, he wrote a textbook of Physics for school students. Fermi was a complete Physicist: equally at home with theory, experiments and workshop skills. He was a born leader of men without having to be pompous. He worked on the statistics describing the behaviour of particles like protons and neutrons, which are known as Fermions after him (the other particles being Bosons). He predicted the existence of the Neutrino and was the master of slow neutron bombardment of nuclei which later culminated in the experimental demonstration of the first atomic pile in Chicago leading to the atomic bomb and Nuclear Electricity. In spite of being a professor at the age of 26, he remained approachable and loved to play football with his friends. His wife Laura in her autobiography, *Atoms in the Family*, describes how he made her the goalkeeper in his football team. He always went straight to the heart of a Physics problem intuitively and later formulated it mathematically. He was Director of a research lab in Italy, now known as the Fermi Institute. When Lurie, father of Molecular Biology went to meet him and enquired from him about the Director of the lab he directed him to the Director's office. When he later found out that it was Fermi himself who had played this joke on him, he enquired why he did that. Fermi said, "You wanted the Director and I sent you there. Also I was in my workshop overalls, going to work on the lathe and you would not have believed that I could have been the Director — I love just being plain Enrico."

CHAMANLAL GUPTA

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A clarification — editorial note

We have had occasion in some of our past issues to reproduce portion's from *How They Came to Sri Aurobindo and The Mother* by Shyam Kumari. We should have indicated that the first volume was published by The Mother Publishing House, Bombay, and all subsequent volumes were published by the author c/o Sri Aurobindo Ashram, Pondicherry.



## EDUCATION FOR A FAITH IN THE FUTURE

*[The National Council of Educational Research and Training (NCERT), the apex organisation assisting and advising the Central and State Governments in Education, recently instituted a scheme entitled ‘Sri Aurobindo Memorial Lecture’. The first lecture under this scheme was delivered by Manoj Das at the Presidency College auditorium, the University of Calcutta, on the 2<sup>nd</sup> of July 2008. This version of his talk is supplemented with a few illustrations. By courtesy: The Statesman Festival Number 2008]*

### Of Roots and Branches

WITH the proliferation of newspapers and newsmagazines as well as the gradual increase in the number of their pages, reports and essays on important issues and topics, sometimes through special supplements, have become a regular feature and one such recurrent topic, no doubt, is Education. Also more volumes on the subject have been published, including a series by the UNESCO, during the past three decades than ever before. This shows on one hand that public interest in the subject has grown wider, but on the other hand, if I can be pardoned, the situation provokes one to wonder about the quality and character of this wider interest, for a wider interest alone is not a sure sign of a serious or deeper interest. The interest the media has cultivated among an even wider readership in a category of news that is billed as art, culture and literature is rarely anything more than entertainment, glamour and items for titillation.

No doubt, the level to which the concept of Education can be diluted has a limit, unlike topics of culture such as art or literature. But the danger in the case of Education is less perceptible. When something ugly or vulgar is offered as art or music or dance, we can shut our eyes or ears to it, we can very well do without them, but when Education is presented as a discipline entirely devoted to external accomplishments, mastering ever new inventions in technology, and the promotion of career and prosperity, we may not find anything amiss in it because we need such opportunities; there is nothing vulgar or apparently degrading in them. The worldwide challenge of competition and the demands of what is often termed as fast life does not give us respite enough to reflect on the question if what we accept as Education today is the genuine stuff, if Education did not have some greater role to play in our life than obtaining for us the aforesaid accomplishments and vocational facilities.

That brings to mind a brief dialogue, but a significant one. Thoreau and Emerson

had both been students at Harvard. Once, while the two celebrated *alumni* were reminiscing over their days in that famous university, Emerson said that by now their *alma mater* had several branches of Education. Thoreau, who was better acquainted with the ground realities, observed, “Yes, indeed, prolific branches there are; but what about the roots?”

With the passage of time things like lifestyle, fashion, communications and social and political structures are bound to change; but certain things do not change — a mother’s love for the child, the need of faith in our communion with one another in our daily life or our need for peace and progress, for example. The same applies to our basic trust in the necessity of honesty. We exclaim with appreciation, “What a wonderfully honest man is he!” We do not exclaim with the same emotion “What a wonderfully dishonest man is he!” We instinctively recognise the indispensability of such qualities for our collective survival. Maybe, it is even more subtle than instinctive, for according to a study (2007) published in the journal *Nature*, infants as young as six months can differentiate between good and bad elements, outdating the theory that children developed that sense along with their knowledge of language when they were about two years of age. A team of psychologists including Prof. Karen Wynn of Yale University, Connecticut, carried out a study on two groups of babies, the first aged six months and the second aged ten months, showing to them a climber trying to ascend a hill who was helped by one blob and hindered by another. Offered a choice between the two, the babies chose the blob helping the ascent.

Like these values that had not changed just as the Himalayas had not ceased to be overwhelming or a flower had not stopped being beautiful despite prevailing for millennia, the original role of Education had not changed despite our ignoring it and that role could not have been more precisely stated than what the ancient Indian scriptures said, *Sā vidyā yā vimuktaye* — Education is that which liberates.

Life, it was agreed, was the greatest university, but a certain outlook needed to be cultivated in the young to transform their transient experiences in the world into lasting lessons. From its very indeterminable beginning, Education in its classical sense had two aspects: first it cultivated in the student a quest for knowledge and next trained him or developed in him a skill for supporting himself in the existential sense as well as for playing a purposeful role in the community. Innumerable testimonies are there in the Indian tradition of literature and philosophy to suggest that the teachers of yore tried — and they must have succeeded in many cases if not in all — in striking a balance between these two ideals of Education for a considerable length of time. They studied the *pravritti* — the inherent inclination of the student and accordingly helped him to choose his *vritti* or vocation. If the vocation was already fixed by heredity, the pupil was taught the way of taking equal care, if not more, of his *pravritti*, that was generally in consonance with his *swadharma*, the inner law of his being.

It will take too long to identify the historical forces that disrupted this balance, resulting in those who cared for only their inner self breaking away from the so-

called worldly life and those who led the typical life as social beings distancing themselves from their inner self. This unfortunate development, by now, has reached its culmination. We rarely remember that beneath our surface self, dominated by our senses, craving for pleasure and pride and given over entirely to satisfaction of ambitions and desires, we have an inner self thirsting for truth and the knowledge of a different order — that which liberates us from our bondage to ignorance.

But, such is the constitution of man that the satisfaction that his surface self seeks does not come through a mere preoccupation with desires and ambitions. Hence the multiple innovations in the means of enjoyment and the search for pastures new for pleasure.

This is the psychological state of affairs that has inevitably given a diabolical boost to consumerism. As a thinker observed, once we knew necessity to be the mother of invention whereas today it is invention that is the mother of necessity. Our illusory needs, illusory hopes for joy, are continuously whetted by the militant intelligence behind consumerism manipulating our taste and dreams. By and by it is the culture of hedonism that dominates and blinds us. “Modern man is drinking and drugging himself out of awareness, or he spends his time shopping, which is the same thing,” says Earnest Becker, in his *Denial of Death*.

### **A Confession and a Question**

May I be allowed to bring in here the confession of a gentleman, as a representative illustration of the pattern at work. This is from one who was once a successful scholar, about ten years senior to this author, who as an entrepreneur proved equally successful but had just stopped short of reducing himself to a complete android. Let me put briefly his lengthy moaning.

“You know, like many other youths of the immediate post-independence decade I carried in me the residues of idealism that had inspired the best among my preceding generation, inspiring them to make so much sacrifice for the country. In the changed circumstances, I had two ideal ways open before me: either I could become an element in the bureaucracy and serve the country honestly or contribute to the economic progress of my country through some independent enterprise. I chose the latter, for I had some dynamism in me. I do not know at which point of time I forgot my mission. It was, I’m afraid, a gradual but rapid process of decline and my mind was not alert enough to detect, or I could be deceiving myself, for the lure of affluence is irresistible for the average man, as I have seen. I found myself amidst a corrupt gang of associates and rivals and I could not have competed with them without being corrupt myself. To my amazement my college-day friends who were once equally idealistic like me and some of whom were by then either in politics and power or in the administrative service and whose help naturally I needed from time to time, seemed to have subjected

their minds to the same brand of morphine.

“Thus together we continued to slip farther and farther down the path of moral paralysis. But there was still that puny substance called conscience somewhere deep in the self and at times it would hum a sad song; there was somewhere in me that forgotten love for silence and serenity that would nostalgically remind me of the poet Davies we studied in our High School: *What is this life, if full of care / We have no time to stand and stare?* But the demand of exigency, of a strike in the factory, of betrayal by a distributor, of blackmail by hoodlums, a sudden fall in export, to mention a few, would push those precious moments down into oblivion. My children grew up amidst affluence and in their show of loyalty to me shouldered the burden both of my wealth and my worries, but without the idealism that had launched me into the adventure or the knowledge of the struggle I had put into it.

“My grandchildren grew up amidst a new culture or call it a want of culture if you please, looking upon luxuries and the arrogance they breed as their birthright and divided their time between pleasure on one hand and the care of their early diabetes, blood pressure, etc. on the other hand. I was condemned to look on as one of my grandsons, in his early thirties, was dying in the intensive care ward of a star hospital, suffering from a heart ailment. He had returned from the West, with the highest training available in management. Poor boy! The last query he made, before closing his eyes finally, was regarding the very first export deal he was handling. What was an even greater pity, later his most intimate friend confided to me that the young man, already a father of a child, frequented an exclusive private club where he had been ensnared by a vamp whose pretensions to love — even a promise to marry him — my unfortunate heir took seriously. She exploited him thoroughly and when he grew suspicious of her loyalty, snubbed him as she had snubbed so many stupid opulent chaps. My grandson, unknown to us, was down in the dumps. This susceptibility to depression, I suppose, was probably the perverse leftover of the one meaningful trait he had inherited from me — the feeling of guilt at any unethical propensity, while his colleagues in the club were uninhibited in their amours.

“You can imagine my agony when I found in his life and death nothing more worthwhile than the theme for a shoddy sentimental novelette. While the family wept, I only wondered, what was the use of all his super-specialisation in management if he could not manage his own little mind and heart? What was the education we imparted to him if the very last question he must ask, even if it were to hide his real cause of anguish, should be nothing nobler than a routine export? What was the meaning of our having inspired him to study more and more, to do better and better when it led to his forgetting that there were more worthy issues for reflection at that moment than an export order? Now, in my eighties, I wonder what the meaning of my own life has been. Search for happiness, I made my whole life a span of tension. I read the other day, what I had read fifty years ago, that a cosy bedroom costing a million is no guarantee for even a minute’s sound sleep. The truth overwhelms me now; but why

had it no effect on me fifty years ago? I tell you, my friend, something was grotesquely wrong in the education we received. True, colleges in our time, unlike now, had not been cursed with careerism, but as I deeply reflect on what went amiss, I find that nothing in our system told us that life was not all that we lived on the surface, that there was an inner life, that there was an element called soul, that our true happiness or true sense of contentment depended on it.”

Consumerism thrives on keeping us forgetful of the inner life. Glamour and dazzle constitute the life consumerism would like us to live; momentary sense-satisfaction, through power or pleasure, is the *raison d'être* of our existence. Parents are grooming their children for realising this ideal. This even could pass, but the problem is that it is proving to be more and more frustrating. There are some well-researched studies in this regard and I refer to one of them, *The Price of Privilege* by psychologist Dr. Madeline Levin. She observes that students today are much more smart and intelligent. As their parents have more resources to spend, they buy them cell phones, cars, other luxuries and provide them with enough money to spend at will. But they don't give them love or intimate company. They have greater expectations from their children in terms of social and economic success. They drive the kids into the race for excellence, not excellence as human beings, but as status-achievers. And what is the result? I quote a few lines from Dr. Levin's study: “We know that this group of kids has three times the rate of depression and anxiety disorders as ordinary teenagers, as well as substantially higher rates of substance abuse, cutting and suicide. The most dangerous feelings a child can have are of self-hatred; yet middle-class parents are unwittingly instilling those feelings by expecting so much.”

How different is the situation in India? “In this age of instant gratification, fewer children and greater resources mean that kids are indulged as never before,” says a report highlighting a study by the Mumbai clinical psychologist Narendra Kinger, who observes, “In such cases kids are unable to handle the occasional refusal and treat it as rejection. At times they may show anger and hatred by running away from home or withdrawing to their room, or even refuse to eat, or display negative behaviour. In extreme cases it may lead to suicide.”

The conclusion is the child must be taught to live with refusals to half of their demands. “Tough” love of parents can do that.

Indulgence was never the Indian way of love; a genuine concern could transmit to the child the necessary conviction that the parent's love is the basis for refusal. One remembers that beautiful story by Mulk Raj Anand, *The Lost Child*. On his way to a fair and then passing through the festive fair with his parents the child is fascinated by so many objects and wishes his father to buy them for him. But the father refuses to oblige the child. Somehow the parents and the child are separated from each other in the jostling crowd and the crying child is found by a sympathetic soul. Eager to console the child he offers to buy him the very stuff he craved for a while ago, one after another. But the child now has only one need, “I want my mother, I want my father!”

An Associated Press report says that one-third of America's younger children — babies through age 6 — live in homes where the television is on almost all the time. Almost one child in five under 2 has a set, despite the American Academy of Paediatrics announcing serious warnings against this practice. The parents are not only apathetic to it, but also are proud about it. The report quotes a mom laughing and narrating how her "15-month-old sang the McDonald's jingle, *ba, ba, boppa, ba* every time they drove past the golden arches."

Ignorance of the devastating consequence apart, the reason the parents encourage their little ones to fall in love with this monster is obvious: They are exempted from devoting their attention to them. What is the situation in India? "Television viewing has become the Indian drug of choice. As the drug suppliers, offering more and more channels and inane programmes to fill them, celebrate the mass addiction, cautionary voices warning of the dangers tend to be lost in the self-congratulatory cacophony of the pushers and users," says Psychoanalyst Sudhir Kakar. He says further, "Over the past two decades studies from many parts of the world have established the harmful consequences of television viewing. They find little mention in our popular discourse although their validity is no less than of studies which link smoking to various health problems. I am not even talking of the psychological impact of the content of television programmes. For instance, the relation between violence shown on television and the increase of actual violence is now clear-cut. Only someone who is ignorant of facts can continue to doubt that television increases the propensity to violence."

At the present rate of superfluity and affluence and its unholy but unavoidable ally, hedonism, today's child is going to be the victim of unsuspected killers as he grows up. The report of the World Health Organisation, released in June this year, warns that as the people get richer, smoke, drive and eat more, non-communicable diseases will become bigger killers during the next two decades than the infectious ones. Dr. Ties Boerma, Director of Health Statistics for the WHO says that he sees more obese people and more smokers in capitals around the developing world. It should be mentioned here that TV watching and obesity among middle-class Indian children has been already asserted by survey.

But for the campaign against smoking that has lately gathered some momentum, greater addiction to that habit was inevitable. That is because a major temptation for smoking before it becomes an addiction is the urgency for a momentary diversion from nervous and worrisome mental preoccupations — and such preoccupations have multiplied.

The situation conjures up in my mind a comical scene: In the middle of a road there is a boulder, obstructing smooth passage. Atop the boulder rests a lamp. If you ask why is the boulder there, the answer is, to uphold the lamp. Should you ask why is the lamp there, the answer is so that the pedestrians or drivers avoid dashing against the boulder. We embrace tension in order to live, and we must live in order to go on experiencing tension. The illusion is both justify each other; the reality is both cancel

each other, thereby rendering the whole phenomenon absurd. Alas, the list of factors adding to this condition of absurdity is long.

### Values then and now

Philosophers and thinkers have identified many a sign that differentiates man from the other creatures on our planet. One of them is, be he conscious of it or not, man lives by some values. Not that the value has to be necessarily lofty. The noted social reformer of Gujarat, Ravishankar Maharaj, devoted years to change the life of a tribe of hereditary burglars. One day, as he talked to a young practitioner of the tradition, the latter said with disarming frankness, "Maharaj, if you ask me to give up my practice, I will do so. But the fact is, Goddess Lakhmi, buried under the floors of some householders, shouts out to me as I pass by, asking me to liberate Her. Only then do I dig a hole through the wall and enter the house and scoop out the treasure."

Alas, the values in which the masses believed have faded out one by one. Once men were ready to die for their kings; that culture is a distant memory. Religion was the most powerful, the most meaningful and satisfying value people upheld in their lives and with which they justified their sorrows and sufferings — even their very existence. But today the tradition is kept alive more for political and egotistic purposes and for collective assertion of selfishness than for true faith, barring rare exceptions. If gods and goddesses are worshipped with greater hullabaloo than ever, it is not out of devotion, but for the festivity and a competition among the local islands of communal ego. Not long ago we read that in a city that had been the home of some of the greatest intellectuals and spiritual giants not only of India but also of the world, a film actor's image was ritualistically worshipped as a deity, making the devaluation of religious divinities complete. I also read a headline that the actor was shocked at this. For a moment I was consoled under the impression that at least he was sensible enough to feel shocked, until I read the text under it saying that he was shocked with delight.

If the age of institutional religion is past, Spirituality, the only alternative that could play with greater effect the role the religion at its best played, had not yet made a bold debut, not to speak of filling up the vacuum. Fake and pseudo-mystic cults, selling "cosmic cushions" for instant cosmic experience, or offering Nirvana through telephone, have usurped quite a vast space.

We all know how Curzon's move for partition of Bengal created such an upheaval that the British rulers had to agree to "unsettle the settled fact". But later developments brought about not only the partition of Bengal, but also the partition of India, thereby dealing the most damaging blow to our value of nationalism and patriotism.

There was a time when the wealthy were looked upon as blessed by divinities and hence deserved respect. Today the wealthy are often hated and necessarily suspected, thanks to the notoriety earned by most of them for their greed, vainglorious

exhibitionism, corruption and betrayal of the interest of the country.

Family values have broken down. This is not to say that the family relationships have vanished. That has so far survived the changing life patterns in India. But what has received the most horrendous jolt is the institution of social relationship, the trust men could have in men, particularly the reliance the masses had on those who are educated, for the fact is that most of the sophisticated criminals, swindlers of the people's treasures and saboteurs of national security and manipulators of legal provisions to serve their impish interest are people with handsome degrees and diplomas. The respect the educated commanded till the other day, the term *Vidyā* associating in the popular imagination a personality like Vidyasagar, the epitome of truth and nobility, is only a memory. In other words, the moral value that went with education has been reduced to zero. That reminds me of what the late Dr. Malcolm Adiseshiaiah, noted educationist who held an important position in the UNESCO once told us at Pondicherry: London was bombarded during World War II. The state of aviation being what it was, the degree of accuracy with which the pilots hit their targets was surprising. The mystery was solved when, at the end of the war, it was found out that the bombers were those German students who had got their higher education in London as British Council scholarship holders.

The print media as well as the media as a whole commands no respect, however avidly it may be consumed. The sanctity with which the printed word was associated has clean evaporated.

Perhaps the harshest blow to have fallen is on the relationship between the patient and the doctor, the latter till recently seen by the common man as his godly saviour. The day the doctors of a major hospital in a state capital walked out at the call of their union literally leaving the hearts of their patients open or pulling off the oxygen masks from the unconscious trusting clients at their mercy allowing them to "die like flies" as the reports said, they stabbed the most tender limb of the social corpus. As if this was not enough, shortly thereafter the staff of India's first mental sanatorium walked out for the same reason one afternoon, leaving the doors of the cabins open. The gleeful inmates, totally oblivious of themselves, stepped out to the streets, several of them to be crushed by the traffic.

Each one of these protesters was probably a good parent, a good spouse and a friend to you or me. How could they all of a sudden turn so inhuman, so pitiless? Obviously education had failed to impart to them any value more than what was instinctive and indispensable for merely self-centred survival and career.

And what must occupy the vast space vacated by such values? The answer unfortunately is not any new set of values, but wrong values. They assault intelligence, common sense and higher tastes. Their immediate prey are the students. Let me refer to one such value. Several studies have shown how pop and rock music contribute to both physical and mental problems of the young. I quote from one serious study of the problem, *The Closing of the American Mind* by Allan Bloom:



“... It has risen to the current heights in the education of the young on the ashes of classical music, and in an atmosphere in which there is no intellectual resistance to attempts to tap the rawest passions. Modern-day rationalists are indifferent to it and what it represents. The irrationalists are all for it . . . . But rock music has one appeal only, a barbaric appeal to sexual desire — not love, not Eros, but sexual desire undeveloped and untutored. It acknowledges the first emanations of children’s emerging sensuality and addresses them seriously, eliciting them and legitimatising them, not as little sprouts that must be carefully tended in order to grow into gorgeous flowers, but as the real thing. Rock gives children, on a silver platter, with all the public authority of the entertainment industry, everything their parents always used to tell them they had to wait for until they grew up and would understand later . . . .

“Ministering to and according with the arousing and cathartic music, the lyrics celebrate puppy love as well as polymorphous attraction, and fortify them against traditional ridicule and shame. The words implicitly and explicitly describe bodily acts that satisfy sexual desires and treat them as its only natural and routine culmination for children who do not yet have the slightest imagination of love, marriage or family . . . .”

The Indian film lyrics and what is in circulation as so-called album songs are perhaps not lagging far behind in such unabashed suggestiveness, for the clever culture-vultures know that most healthy inhibitions could be eliminated through means that have some pretensions to culture. Academically sound studies have established how this process of reckless exploitation in the name of culture had found as its intimate allies drugs and violence, directly related to mercenary consumerism. In an era of rapid growth of global communication and exchange, we cannot expect such developments to remain confined to any one continent. In fact it has already become a worldwide phenomenon in the absence of any bulwark against its wicked network, often enjoying the patronage of powers that be.

### **Factors aggravating the Corrosion**

Two prominent factors among those aggravating this process of corrosion of values are the media and the hawkers of career education. Let us briefly focus on the first factor first. As the veteran Hiranmay Karlekar, former editor of the *Hindustan Times* and co-founder of the National Union of Journalists bluntly states, “What is happening can only be described as the colonisation of the print media by television. The latter is imposing its culture on the former in the same way colonial powers imposed theirs on the colonised . . . they [the papers] are acquiring the latter’s orientation towards entertainment in a competitive market whose ethos are increasingly influenced by television. The more serious publications still involve themselves in serious discourse. They too however are changing and, in an environment in which people demand to be continuously entertained and want to avoid thinking, their role as me-

dia of critical discourse is liable to be overshadowed by their role as media of entertainment. The minority of readers who are interested in the more serious parts of newspapers like editorials, reflective editorial-page articles, book reviews and in-depth articles in Sunday magazines, are rapidly becoming fewer in relation to the total readership. The majority of readers who mainly read sports, cinema and television news and give a cursory glance at the rest of it, are growing in number. The trend is destined to gain further momentum. As the market economy has society more completely in its grip, people drained by the effort to hold their own in an increasingly competitive environment, are increasingly inclined to seek nothing but entertainment outside working hours.” (“The Media: Evolution, Role and Responsibilities” in *Looking Back: India in the Twentieth Century* by N. N. Vohra and Sabyasachi Bhattacharya)

What is more unfortunate and alarming, the role of media, by and large, is not confined to that of a chic entertainer, it is playing havoc with values. Not that it is fighting old values for new and progressive ones, it has mindlessly kept itself engaged in degrading and confusing values — spearheading a lamentable trend of cultural anarchy.

In September 2006 a women’s college in Chandigarh prohibited the use of cell phones during the class hours. Protests by students took an uncouth turn, with jeans-clad young ladies climbing the parapet and smashing several objects, all property of the college, but flower pots in particular. An alert TV channel projected the scene in the evening, prominently showing the lady who was leading that vulgar spree of destruction.

We wonder what the lady’s parents at home would be thinking of their daughter’s conduct. If they belong to the average sensible mentality, they would feel embarrassed if not disgusted and would probably take their ward to task; but imagine their predicament when a Mumbai film-maker rings up the lady and informs her that he has chosen her to play the lead role in his multi-crore production in the offing.

The big newspaper that had carried the picture of the chaos in the college on its front page did not think twice before claiming credit for being the courier of this silver luck to the girl. It repeated the claim, under slightly different pretexts, several times and did not forget to inform us that the girl has thanked the paper through a TV channel.

Whether the young lady could prove herself an artiste or not is a different issue. Maybe, there are more countable things than art for that glitter. In any case the producer got publicity worth a million, free.

Thus was rowdiness glorified and rewarded. What is remarkable, neither the newspaper, nor the TV channel, nor the producer bothered to reflect on the effect of their conduct on society; about the horrendous example they set before tens of thousands of young minds who stand at the crossroads of destiny. Alas, the newspaper also gleefully reported how the said lady is engulfed by a deluge of wannabes “all

struck by glamour, all wanting fate to rewrite their ordinary scripts.” What an extraordinary ambition being promoted!

Glamour is the thing. Let us read from the same newspaper extracts from a report regarding a Students’ Union election in a leading university in our very national capital, an event expected to be a grand opportunity for debates on issues purposeful, intelligent and intellectual: “Candidates for the Delhi University Students’ Union (DUSU) elections may be parroting the expected lines at the hustlings, but on the ground there is just mascara. Lots of it as the ideal *hamara neta aisa ho* look to woo student voters is all about looking zany. That is where Prem Studios in Kamala Market comes in. A veteran in the business of giving DUSU aspirants that dream look since 1978, this time the only brief has been, says Umesh Sabharwal, managing director of the studio, “glamour, glamour and more glamour”.

The paper interviewed students. “For . . . a first-year-student of Economics and his friends, it is the DJ parties, free sandwiches and the cold drinks that will guide the choice. The group has so far been to three such parties, but the lack of drinks other than water was a definite letdown, feels . . . of B.Com (Hons).”

This author is omitting their names, but the paper not only gave the name of the young lady thirsting for some evocative drink, but also coddled her by printing her photograph, all smiles.

What is wrong with this tide — this collective resignation to the spell of hedonism — is not its immoral and unethical character, for one can argue that concepts of morality and ethics change from time to time. The situation is bad because it is against the spirit of evolution, because it is a negative reaction to the call for an adventure in consciousness. Hedonism not only fails to deliver the promised pleasure, it drains one of one’s zest for life, and leads either to self-destruction or anarchy.

Nobody can really be unaware of this situation, whether one is involved or not in the world of education. And, needless to say, what emerges is a portrait of gloom. Is there any remedial possibility involved in the spirit of education itself? Sometime ago this author read a summary of the *Education for All* global monitoring report covering the period till year 2005. The situation might have changed slightly, but it says that approximately 103.5 million children do not go to schools. About 800 million adults are illiterate. Of this seventy per cent live in nine countries of the sub-Saharan Africa and East and South Asia, “notably India, China, Bangladesh and Pakistan”. The report calls upon the governments concerned to remedy the situation, but what is surprising and disheartening, those who have commented upon the report have, without exception, looked at Education as technology-intensive training. One comment stresses the importance of trade among nations and wishes education in the developing countries to be accordingly oriented.

Here lies the crux of the problem. Trade and technology are indispensable no doubt, but we seem to have forgotten that they are only parts of the external aspect of Education; they must not become synonyms of Education. They are designed to serve

man; man is not designed to serve them. They are by no means to be shunned, for the Evolutionary time-spirit has placed them at our disposal so that we become more efficient masters of our environment. But trade and technology do not constitute progress, they are external aids for progress and the true progress is a growth in consciousness. Once in a while we come across an essay on Montessori or Bernstein or Sadler and their sophisticated theories, but they are in academic magazines with meagre circulation and are like a cry in the wilderness, for no theory or doctrine could withstand the sudden and powerful sway of education for the sake of trade and technology.

Coming to the hawkers of career-education, here are extracts from a report from Mumbai: "For the painfully shy Shitikanth, topping the fiercely competitive IIT entrance exam has been akin to wearing a crown of thorns. Ever since the results were declared, the bespectacled 18-year-old's life has been turned upside down. So much so that he fled his house in Patna and arrived in Mumbai on Monday a little past midnight to escape the long line of politicians, touts, coaching class tutors and other opportunists who had given him no rest since the Indian Institute of Technology declared him the topper. Unable to bear the constant badgering and cajoling 'please endorse our class', 'please appear in this ad', 'please be the chief guest', — the reticent teenager did the only thing he could think of to retain his sanity. He cut and ran." (*The Times of India*, 6 June 08)

### **An Evolutionary Crisis**

How come so many sections of people, in the course of a few decades, could grow bankrupt of conscience, any capacity for circumspection, not to speak of introspection? No doubt the innate instinct of self-preservation obliges one to be self-centred; but there are any number of instances to prove that there is enough in us to inspire our thoughts and actions beyond the programme of mere survival or if anything more, survival with pleasure. History presents glimpses of ages when people were spontaneously concerned about one another while taking care of their self-culture. It is not as if we are lacking in ideals; but something in us that has come to the forefront makes a caricature of the ideal in the process of its execution. All of us must be having some instances of this irony in our daily life, but let me narrate a first-hand encounter to make it clear.

It was a pleasant drive along a lonely and lengthy road flanked by a major lake and green fields. The car stopped amidst a large number of vehicles, from bullock-carts to trucks. I woke up to the fact that there was a *Rasta Roko*, a *Bandh*. No more than twenty men with flags had brought all movement at both ends to a grinding halt. The *Satyagrahis* (Followers of Truth!) as they called themselves, were inhabitants of the nearby village and they had a list of local grievances of which none of us who

were taken hostage had the slightest knowledge nor anything to do with. There were more policemen than the *Satyagrahis*, but they had been instructed to stand stoically.

I had, like hundreds on both sides of the spot under siege some pressing work to attend to, but we were rendered impotent by a small gossiping and smoking band, obviously elated at discovering their own potency. It was a summer noon. I got down and surveyed the travellers, men, women and children peeping out from the rural buses on their way to the town for legal, medical or other emergencies, anxious, worried and sweating. At one side of the road, under the solitary tree, was parked a cycle-rickshaw with two passengers — an octogenarian woman supporting a teenage lady who was in an advanced stage of pregnancy and in a state of swoon. The rickshaw-puller told me that they belonged to his village and as the young lady was in a critical condition, he had volunteered to carry her to the primary health centre a few kilometres away, but had been detained here for the past two exasperating hours. “I don’t think she can survive the ordeal,” he murmured in a sort of soliloquy, and sighed.

I walked up to the leader of the Followers of Truth and, hands folded, appealed to him to let the single rickshaw pass. His voice charged with the spirit of democracy and socialism, the leader asked me, “How can you, though you seem to be somewhat educated, advise me to be partial?”

I stood educated in the theory of equality in action. But further enlightenment awaited me — regarding the ideal of freedom. As another gentleman stepped forward and asked, “Why should you block a road that belongs to the public?” one of the leader’s junior compatriots, eager to steal the thunder, retorted, “In free India every inch of place is owned by all the citizens of India.”

I realised that we the Indians had reached a silent consensus on redefining every ideal and principle our constitution and laws have given us. But was the situation in the world basically any different? Powerful nations can redefine the principles of international relationship, snubbing any dissent; freedom of expression can be reduced by media all over the world to unabashed sensationalism and gross vulgarity. The situation can be described only as a fantastic paradox. We know what is right, we agree collectively on what is desirable, but neither as individuals nor as collective entities have we followed the right or the desirable. There is something grotesquely wrong in our consciousness. This observation no doubt applies to India more than to any other country. When a European scholar pursuing a long-term research project in India articulated his anguish before this author in the following words, he was echoing the surprise of many others:

“I know India was the country where the grand quest for the meaning of life, death, suffering and joy began. It is here that the inimitable meaningful prayers of aspiration for God, Light, Freedom, Bliss and Immortality were spelt out in Sanskrit, the mother of all the classical languages of the world. Nowhere else was the conviction that life is a progressive journey towards a sublime end, birth after birth, so clearly formed, nowhere was the theory of Karma so elaborately discussed, no other

civilisation had assimilated lofty spiritual ideas in its rituals and daily life. How is it then one witnesses so much hypocrisy, fraud and dishonesty here?"

The only observation, not an answer, that can be made is that we have failed the expectations our mighty heritage legitimately aroused and have fallen as a nation. Some clues to the enigma can be found in the total loss of values already discussed. But the immediate factor responsible for the sad state of affairs is the failure of the system of our education to inspire in the young the love for truth, the faith that our total consciousness reserves much more than what only a part of it, the mind with its faculties like intelligence and intellect have unfolded so far, the truth that with the creation of mental man the process of evolution has not come to an end.

As Sri Aurobindo looks at the situation, "At present mankind is undergoing an evolutionary crisis in which is concealed a choice of its destiny; for a stage has been reached in which the human mind has achieved in certain directions an enormous development while in others it stands arrested and bewildered and can no longer find its way."

Education can of course liberate us from this impasse, for it can find the greatest support in that direction in the process and power of evolution itself, for, in a sense, evolution is a gradual realisation of liberation. The manifestation of the earliest forms of life as plants out of the apparently lifeless matter was a step towards liberation of the imprisoned consciousness. A far greater degree of freedom of consciousness — and an exercise of that freedom in infinitely variant ways — was possible with the emergence of the primeval creatures, from worms and insects to the whale and the dinosaur, from the birds to the beasts of incalculable varieties. That urge for freedom inherent in Nature, for releasing its possibilities and potentialities, took a new and hitherto most significant turn with the emergence of man and, needless to say, man is the only creature who has never stopped growing. With relentless zeal he has not only adapted himself to the changing environment, but also has obliged the environment to adapt to his demands. Emerging from the state of primeval Nature he has created for himself new worlds of art, architecture, literature, music, philosophy and spiritual quest. His activities and achievements in all these spheres have meant the gradual realisation of his own potentialities, a joy in the freedom of experience, adventure and expression.

If the process of evolution itself is a movement of consciousness realising its own freedom from its bondage to material and other limitations, the 20<sup>th</sup> century we just left behind has been the witness to the most momentous events and ideas ensuring greater freedom for man on several fronts. Imperialism, colonialism, monarchy and feudalism all collapsed ensuring man's social, political and economic freedom. Revolutions and reformations, emancipation of women from social taboos and discrimination, end of apartheid, all point in the same direction. Science and technology have played their role in according a greater dignity to the individual.

But these facts of outer freedom do not come to much — they even are vulnerable

to misuse — unless there is achieved the other freedom, the freedom from Ignorance. Sri Aurobindo believes that the realisation of such a freedom is not only a possibility, but is also a certainty inherent in the very nature of evolutionary development. The true role of Education is in preparing and helping man to arrive there — at a new phase of existence. Man is neither an accident nor a freak of Nature. He is an evolving being, awaiting his fulfilment. No doubt he has come a long way from his primitive state via a stage dominated by vital or raw life impulses, he has been a mental creature for long and has achieved marvels with his intelligence and intellect. But proud of intellect though we may be, Einstein warns, “We should take care not to make the intellect our god; it has of course powerful muscles, but no personality.” (*Out of My Later Years*)

As the Italian thinker Primo Levi stated, “Normal human beings are biologically built for an activity that is aimed towards a goal.” A goal always implies a call to go farther than where we are. Till the forties of the 20<sup>th</sup> century, so far as India was concerned, the ennobling goal of freedom from colonial rule kept the youths inspired. Since the achievement of that goal, we have been fed with the illusion of false goals, bereft of nobler values. We must replace them with the most optimistic goal, an aspiration for transcending the present dimly lighted state of our consciousness and entering a new phase of consciousness. In his great works such as *The Life Divine*, *The Synthesis of Yoga*, *The Human Cycle* and *The Ideal of Human Unity*, Sri Aurobindo has elaborately explained this inevitable future and educators could find in these works a thrilling new purpose for their endeavour. Once we subscribe to a sublime vision, feel inspired by an extraordinary destination, our approach to our work spontaneously receives a new impetus. It is high time we prove our intolerance of the process of drugging the youth with debauched values and phoney ideals. We must restore the true philosophy of Education and reconstruct the system.

### **Towards an Integral Education**

There are explorations and experiments, though confined to limited spheres, in evolving principles of true Education and their application. I quote a few words from Prof. Kireet Joshi, an educationist who has devoted untiring decades of his life in this direction:

“In the first place the latest Indian experiments in psychic education have given us the concept of fourfold personality, — the personality of Knowledge, the personality of Power, the personality of Harmony and the personality of Skill. It is further emphasised that the fourfold personality can be integrated by the power of the psychic being as also by the powers of higher domains of the Spirit. In pedagogical terms, it is affirmed that psychic education has no method and yet every method and the teacher can employ the three instruments of instruction, example and influence flexibly in

every circumstance in respect of every child. This pedagogy also recognises the necessity of formulating new goals, new contents and new methods of education. It lays great stress on child-centred education and on life-long education, recognising that early childhood is the most favoured period of psychic education and recognising that once well begun in early childhood it has to continue throughout life, since integration and harmony of personality is a life-long process . . .

“This pedagogy emphasises the combination of pursuit of Truth, austerity and harmony and joy of free creativity. It counsels us not to encumber the child with a plethora of stuff that would bury and stifle the wings and breath of the child’s soul but to provide to each child the minimum programme of learning, and the basic requirements of self-education. Once the child has begun to practise the art of self-education, the teacher needs to provide each child the necessary facilities and learning materials appropriate to its inclinations, talents and actual or potential capacities, so that each child progresses at its own pace and according to its own natural rhythm as also according to its own judicious acceleration of progress. A time must come, sooner rather than later, when the child becomes conscious of its own living soul and guides its own processes of education . . .” (*Education at Crossroads*)

The Mother founded the Sri Aurobindo International Centre of Education as a wing of Sri Aurobindo Ashram at Pondicherry to enable the student to apply to his or her life, to the extent possible, this vision of a new future for man. To a question why the Centre does not bestow any degree or diploma on a student, she made the following observation:

“For the last hundred years or so mankind has been suffering from a disease which seems to be spreading more and more and which has reached a climax in our times; it is what we may call ‘utilitarianism’. People and things, circumstances and activities seem to be viewed and appreciated exclusively from this angle. Nothing has any value unless it is useful. Certainly, something that is useful is better than something that is not. But first we must agree on what we describe as useful — useful to whom, to what, for what.

“For, more and more, the races who consider themselves civilised describe as useful whatever can attract, procure or produce money. Everything is judged and evaluated from a monetary angle. That is what I call utilitarianism. And this disease is highly contagious, for even children are not immune to it.

At an age when they should be dreaming of beauty, greatness and perfection, dreams that may be too sublime for ordinary common sense, but which are nevertheless far superior to this dull good sense, children now dream of money and worry about how to earn it.

“So when they think of their studies, they think above all about what can be useful to them, so that later on when they grow up they can earn a lot of money. . . .

“For them study has no other purpose, no other interest.

“To learn for the sake of knowledge, to study in order to know the secrets of



Nature and life, to educate oneself in order to grow in consciousness, to discipline oneself in order to become master of oneself, to overcome one's weaknesses, incapacities and ignorance, to prepare oneself to advance in life towards a goal that is nobler and vaster, more generous and more true . . . they hardly give it a thought and consider it all very utopian. The only thing that matters is to be practical, to prepare themselves and learn how to earn money." (*CWM*, Vol. 12, pp. 351-52)

The passages tell us all that Education ought to be and all that it is not today. Without a collective awakening to the ignored purpose of Education, the rapid corrosion of life by utilitarianism inevitably leading to hedonism cannot be checked. It is the elite who are expected to realise this, to begin with. They can influence the authority or machinery controlling the systems of education to stop the macabre deterioration in the system we have already discussed. We must not feel helpless or too weak to do anything in this direction, for the true time-spirit will be with us. Despite the current signs to the contrary, the secret aspiration in our consciousness will guide us beyond the present imbroglio.

I conclude with a few more passages from the Mother — on her integral approach to Education:

"The education of a human being should begin at birth and continue throughout his life.

"Indeed, if we want this education to have its maximum result, it should begin even before birth; in this case it is the mother herself who proceeds with this education by means of a twofold action: first, upon herself for her own improvement, and secondly, upon the child whom she is forming physically. For it is certain that the nature of the child to be born depends very much upon the mother who forms it, upon her aspiration and will as well as upon the material surroundings in which she lives. To see that her thoughts are always beautiful and pure, her feelings always noble and fine, her material surroundings as harmonious as possible and full of a great simplicity — this is the part of education which should apply to the mother herself. And if she has in addition a conscious and definite will to form the child according to the highest ideal she can conceive, then the very best conditions will be realised so that the child can come into the world with his utmost potentialities. How many difficult efforts and useless complications would be avoided in this way!

"Education to be complete must have five principal aspects corresponding to the five principal activities of the human being: the physical, the vital, the mental, the psychic and the spiritual. Usually, these phases of education follow chronologically the growth of the individual; this, however, does not mean that one of them should replace another, but that all must continue, completing one another until the end of his life." (*CWM*, Vol. 12, p. 9)

MANOJ DAS

# WANDERING IN THE ARCHIVES OF MEMORY

*(Continued from the issue of January 2009)*

## 6. Welcoming New Creation

I AM being welcomed into a meeting hall. A pleasant little boy gives me a lovely bouquet. There is clapping from the audience. Probably a bridge made up of six decades of earthly life and more separates us. No matter. We smile at each other, as I bend towards him and ask his name.

“Navneetisshan,” he breathes excitedly and with pardonable pride.  
“Oh, how sweet! So you are Navaneeta Krishnan!”

There is an angelic smile and nod from him as he is ushered out by his guardian. I am led to my chair. Placing the bouquet on the table, I make myself comfortable. The meeting goes on. My mind returns to the little boy’s whisper. A lovely name, so appropriate, he looks like little Krishna. Maybe a little too long. How would they be calling him at home? Navneet? Navvu? I think of the grand names our elders have used in their devotional hymns: Navaneeta Krishnan, Krishna who loves new butter. Apt for the boy. He has begun this century. Who can predict the next ninety years? Well might he be the creator of the new marvels of this century. Goodbye to the terrors of my lifetime! Then my thoughts get riveted upon the proceedings while occasionally I take up the bouquet and stroke the flowers with my idle hands.

Most of them are tuberoses with golden rods and a couple of red roses. They are so comforting to the ageing hands. What a lovely colour combination! Ah, tuberoses. I am reminded of the Mother. New Creation! I look at the audience. There he is! Navaneet is sitting on the lap of an elderly man. He is also the New Creation to whom we look for a beautiful future. When the meeting is over and I come down, the boy is not there. They must have left. Lest I forget the bouquet, I have been keeping it in my hand even when the vote of thanks was being given. I must put the flowers in vases once I go home. They may last for a few days. They are sure to, so fresh and with such a lovely scent.

Actually, for one moment I had thought it was a bouquet made of plastic flowers. This does happen occasionally. Such a perfect pattern could only be an artificial bunch! But Mother Nature is always striving towards perfection and this bunch is one of those perfect creations. Back home, I hurry to get the vases ready. My hands are working but my mind is across the seas, far, far away. A bunch of tuberoses and I am crossing the seas? I am in the United States!

Dealing with memories, thinking of the past, can I bring a photographic perfection to it? I cannot and that is my regret ever since I began this adventure in reminiscence. Talk of coincidence! Something comes to assure me that I need not feel guilty about it. Do you think the Mother sent her assurance to my library? How can I say? But always, always, a mother knows her child's problem.

A few days ago, workers were white-washing my library. Now they have gone. I settle down to dust and rearrange my shelf of English fiction. Idly I take out two slender volumes bound in brilliant blue. The French novelist Marcel Proust's *The Remembrance of Things Past* in an English translation! I am not unfamiliar with these volumes for they had been there in my father's library and I have read the novel occasionally. Proust is not an easy novelist, yet he has held a great attraction for me. Should I take it up now? The title seems so apt for what I am doing right now.

Oh no, I have this assignment, that deadline, no, I cannot afford to curl up in the easy chair with Proust in hand and read again the Madeleine episode. Before putting back the books I open the first volume. Oho! "Srinivasa Iyengar, Dec. 2, 1929." Goodness gracious, father was just twenty-one years old when he read this? Now that he is not there in the physical any more, this fact strikes me with a special force. I turn the pages. His familiar red and blue pencil has underlined several passages. I tell myself: just let me read one page and put it back! As my eyes scan the pages, I am amazed. The hero is in the same dilemma as me! He is trying to recapitulate his past:

It is a labour in vain to attempt to recapture it: all the efforts of our intellect must prove futile. The past is hidden somewhere outside the realm, beyond the reach of intellect, in some material object, (in the sensation which that material object will give us) which we do not suspect. And as for that object, it depends on chance whether we come upon it or not before we ourselves must die.

Lucky me! Here is the material object which helps me recapture my American visit to speak on *Savitri*. It was my first visit to the United States to be a speaker at the AUM (All-USA Meeting) conference. My hands are placing the bunch of tuberose into the vase carefully, but my mind's eye is looking at the notepad the organisers had given the seminarians. Each page had the drawing of a tuberose. New Creation! That was the subject of the conference. Also a conference that amazed me no end. Sri Aurobindo. The Mother. And now this World Wide Web of disciples! The sincerity and serious intent was obvious from the very theme they had given: 'Realising New Creation'. Those were the days when the world had not come under the shadow of global terrorism. The World Trade Centre tragedy was still a few weeks away.

The conference was held at Mt. Alverno in Redwood City, California. A bunch of tuberose to open this magic casement! The peace of the building which was a retreat of nuns belonging to the Order of St. Francis was amazing. For one used to the dust and bustle of India, this was all so new. Walking up and down the slope that led

us to the building was a pleasant exercise. And the undercurrent of passion in the devotee members who sought to project the Aurobindonian vision was also inspiring. There, there I can see and hear Julian as he enacts Sri Aurobindo's 'A Dream of Surreal Science' with background sounds:

A brain by a disordered stomach driven  
 Thundered through Europe, conquered, ruled and fell,  
 From St. Helena went, perhaps, to Heaven.  
 Thus wagged on the surreal world, until

A scientist played with atoms and blew out  
 The universe before God had time to shout.

Dakshina joins him and then . . . did they not give a dramatic recitation of that poem on a cat, 'Despair on the Staircase'? . . . the mind goes blank again. How come more recent memories are gone while I can remember so clearly my earlier days? My doctor tells me I should not worry. It just happens. Old age. Cells in the brain do decay in selective areas. Family doctors can veil their heartlessness by flashing a patient smile and patting your hand.

I will not give up so easily. I give another look at the bunch of New Creation in the vase and open my filing cabinet. Apparently I need something more solidly material than the tuberoses. The steel cabinet grumbles at my tug. Let me see. 2001? Mm . . . mm . . . There is my paper presented at the conference among a variety of titles. It has been my yoga. The written word. Writing about Sri Aurobindo and the Mother. I had spent some months planning the paper with the formidable title: 'Realising the New Creation: Revolution, Evolution and Manifestation as seen in *Savitri*'. What a hold-all of a title! The 2001 New Year message from the Mother is the opening chord, turning us towards the New Creation, the New Future:

There are, in the history of the earth, moments of transition when things that have existed for thousands of years must give way to those that are about to manifest . . . . We are at precisely such a turning-point in the world's history. Just as Nature has already created upon earth a mental being, man, so too there is now a concentrated activity in this mentality to bring forth a supramental consciousness and individuality.<sup>1</sup>

I close the file knowing well enough that all the thousands of words in my paper could not have produced a keener effect than these seventy-two words chosen from our sweet Mother for the New Year. She had said all, and the well-managed confer-

1. *On Education*, CWM, Vol. 12, p. 72.

ence itself had given me an immense sense of exhilaration.

At that time I did not realise that much before the rise of the nectar from the deep ocean for achieving the New Creation, we must be prepared to face the Halahala poison. As my husband and I were wandering in the Oxford University a few weeks later, the news came of the Twin Towers Inferno. So what was the point in our speaking and discussing and arguing and enacting the New Creation? What is the use of aspiring, building, facing a million problems posed by man and nature, of foregoing one's own comforts and peace for establishing a New Creation on earth, if just one man piloting a plane can destroy everything? Like the scientist imaged by Sri Aurobindo in his sonnet?

Sri Aurobindo must have been quite aware of this possibility. There are several passages in *Savitri* which give us an idea of the forces of Negation which deter the sadhak from becoming an achiever in the divine realm:

Always the dark Adventurers seem to win;  
Nature they fill with evil's institutes,  
Turn into defeats the victories of Truth,  
Proclaim as falsehoods the eternal laws,  
And load the dice of Doom with wizard lies;  
The world's shrines they have occupied, usurped its thrones.  
In scorn of the dwindling chances of the Gods  
They claim creation as their conquered fief  
And crown themselves the iron Lords of Time.<sup>2</sup>

Themselves imperfect, they can see no perfection anywhere. But the idealist-man has never been deterred. In India they form a legion. So many names flit past my mind's screen in just one moment. Ideal children of Mother Bharat. Ideal children who came to Sri Aurobindo and the Mother in Pondicherry and received new names to become workers for the New Creation. Such beautiful names which have drawn so close to our hearts. Pavitra, Dyuman, Amal Kiran, Arjava, Navajata, to name a few.

Navajata (New Born) was the name given to Keshav Dev Poddar by the Mother. I heard about him when I was a child of six. Father had returned from one of his visits to Bombay. He had met Navajata-ji and had been invited for lunch. It was a wonderful spread and they had served papad. Father had never seen such big papads and we just could not believe either, when he said it was as big as my plate. I was told by amma that from then on whenever he returned from Bombay I asked him whether he had gone to Poddar-mama's house: "Did you get the huge appalam (papad) this time also?"

Then there was the description of Navajata-ji at work. The phone was a strange

2. *Savitri*, CWSA, Vol. 34, pp. 225-26.

contraption for me which was found only in father's college and in Principal Nandimath's house. Here was father describing how "this young man" was speaking on three phones simultaneously! Some years later father told us how Navajata-ji had settled down in Pondicherry. The years rolled by and I became aware of the Ashram world in clearer terms because of my *Savitri* studies. I do not remember meeting him till 17<sup>th</sup> November 1973. He had come with Aster Patel from Pondicherry to Visakhapatnam on 16<sup>th</sup> to take part in a seminar on Sri Aurobindo in the Andhra University. When I went to the University on 17<sup>th</sup> morning, father also was there and he introduced me to them. The day's session had gone well.

The speech that I heard that day made a compelling impression upon me. He used very simple phrases and yet we listened to him spellbound. As I was to write ten years later:

Here was the new man who had achieved stupendous tasks. Here was the new world, but a step away. Why not enter it? As Navajata-ji clad in his simple dress made a gesture with his hands to bring home a point, the symbols of the Mother and Sri Aurobindo flashed from his fingers. His eyes smiled at you and also gazed beyond at the vision of future possibilities. The steady voice drew an arc about the four aspects of the new body: luminosity, lightness, plasticity, adaptability. That this vision 'is the fulfilment of all which we have dreamt spiritually and all which we have dreamt materially'. That the new creation may take several hundred years but we must begin working for it from now onwards.

When I left in the evening for home, I told him I would be back for the next day's sessions. He was happy that I continued to work on Aurobindonian studies and invited me to Pondicherry.

The next morning I received a phone call around 8 a.m. that the seminar stood cancelled. Navajata-ji and Aster had already left for Pondicherry by flight and my father would be leaving by train. I rushed to the Railway Station. We were mostly silent.

As the train was leaving he just said: "At Madras I will go home from the station, take amma and we both will be leaving for Pondicherry immediately. Don't be sad. The Mother is very much here. 'All shall be well and all manner of things shall be well.' " So like father to give a quote, and an apposite one from T. S. Eliot.

I never met Navajata-ji again for it was not possible for me to go to Pondicherry in those days because of my family commitments. But he was very much a presence for me because of my father. It was from 1973 onwards that father was totally engaged with the revised biography of the Mother and would often speak to us of the Mother's spiritual warriors who sought to give a concrete shape to her vision. Navajata-ji was among the most dynamic of them. It was almost impossible to believe that a very,

very successful businessman of Bombay had transformed himself so totally into a Divine Worker. He had started the journal *Mother India* which has celebrated its Golden Jubilee; and other journals like *Purodha*, *Agnishikha* and *All India Magazine*. It was he who took the Mother's cue and established the Sri Aurobindo Society which is now a global phenomenon, carrying the Aurobindonian message to usher in a Greater Dawn; and it was Navajata-ji again who sought to translate as Auroville the Mother's dream of an international city to work for World Unity on the basis of spirituality.

Stupendous tasks calling for an extraordinary imagination which must yet be based on sheer common sense. When one tries to transform a beautiful and bold idea into hard reality, there is curmudgeonish resistance from the Doubting Thomases. But the "great creators" never give up God's work, do they? For, they are "labourers in the quarries of the gods." The best tribute to Navajata-ji has been from another visionary builder like him. Surendranath Jauhar wrote:

Aren't children of the Mother real brothers?

And yet the Mother named him Navajata. Indeed he was a new-born babe of the Mother.

The Mother brought up the new-born child, sent him all over the world to do her work.

Now the Mother realised that this imperfect world is as yet incapable of understanding the work of the new-born child. Hence she has received him back in her lap.

I cannot forget the way work went on wherever Navajata turned up to serve. The work was done with such sincerity, care, and efficiency and quickly too! Our tears dry up as we remember the palace of love he built: but inly the stream flows, an ever-increasing flood.

I go back to the vase and touch the white tuberose rising upwards from the sides of the green stalks, and the fragrance makes me feel as if I am floating somewhere. Rajnigandha appears to be a perfect name since the aroma is altogether heavenly at night if you stand by a clump of tuberose plants. In fact the Telugu-speaking people even call it Sugandharaja, King of Sweet Fragrances. Tyagaraja expresses a wish to worship Rama with Sugandharaja blossoms. Nature must have taken a million years or more to arrive at this perfection. But it was done! In the same way, these great lives dedicated to the vision of Sri Aurobindo and the Mother have not been in vain. They have certainly opened a sun-drenched path for all our tomorrows. Memory floods in now. I was probably a little older than Navaneetha Krishnan, when father taught me to recite a poem which has turned out to be a guardian-amulet to overcome the frustrations of failure:

Say not the struggle naught availeth,  
The labour and the wounds are vain,

The enemy faints not, nor faileth,  
 And as things have been they remain . . .

For while the tired waves, vainly breaking,  
 Seem here no painful inch to gain,  
 Far back, through creeks and inlets making,  
 Comes silent, flooding in, the main.

The Mother's significance for the tuberose seems to be a crystallisation of this poem. "The New Creation: Strong, lasting and fragrant, it rises straight towards the sky." Of course! The flower points to the "eternal sunshine"! The archives of memory have today yielded me one luminous flash and so I will salute these white New Creation blossoms as Mahasaraswati's symbol.

*(To be continued)*

PREMA NANDAKUMAR

*Realisation of the new creation:  
 it is for this that we  
 must prepare ourselves.*

*The Mother*

*(Words of the Mother – III, CWM 2<sup>nd</sup> Ed., Vol. 15, p. 116)*