



FUTURE SCHOOL

Circular 4

For Teachers, Staff and Friends

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Science and Education

The value of science vis a vis other subjects

Science concerns the study of “the natural and physical world, based on facts that you can prove, for example by experiments.”¹ Mother noted the narrowness of this scope and the fact that it only touched “the most exterior part of the physical plane.”²

On numerous occasions, Mother, and Sri Aurobindo, pointed to the inadequacies of science and the fallacy of giving scientific findings a unique position in human knowledge. “Science,” said Sri Aurobindo, “gives you only truth of process’ but “cannot give you even the whole truth of process.”³ It was incapable of answering the most fundamental question of why things have happened as they have in the universe. Take, for instance, the conundrum of how life developed on earth. How and why did consciousness came to occupy and animate matter? Sri Aurobindo was fully aware that scientists had no answer and, in some instances, speculated that it must have been brought in somehow from somewhere else in the universe. But what does that answer truly solve? In *The Life Divine*, Sri Aurobindo observed that “the essential question is how Life comes into Matter at all and not how it enters into the matter of a particular planet.”⁴ Science could not provide all the answers being sought after. Something was missing. “The significance of the whole is left as dark, as mysterious and even more mysterious than ever.”⁵ It is not that science was deemed unimportant by Sri Aurobindo. He would say that “the knowledge science gives...is not only useful but is even necessary.”⁶ But its value and the extent of its necessity could only be gauged with a broad mind capable of

¹ Oxford Dictionary

² 1926, CWM Vol 5, p 66

³ CWSA, Vol 28, p 331

⁴ CWSA, Vol 21-22, *The Life Divine*, p 95

⁵ CWSA, Vol 28, p 331

⁶ Evening Talks recorded by A.B. Purani, 11 June 1926

also assessing the value of other fields of experience and study: “Physical science is only one side of knowledge” he would say. “The poet’s and the mystic’s and the artist’s experience have equal validity.”⁷ The various sides of knowledge and experience Sri Aurobindo referred to have a key role in education.

Science as an aspect of Intellectual Activity

Sri Aurobindo said intellectual activity had two aspects:

1. The first aspect of intellectual activity was concerned with developing critical and analytical faculties. Sciences were excellent at this.
2. The second aspect concerned imagination.⁸ “Art, poetry, music, literature and the sympathetic study of man and his creations,” helped the development of this faculty.⁹

It is, in part, because of the importance of developing the ability to think critically, analytically and penetratingly that science was deemed important by Mother and Sri Aurobindo in a child’s education.¹⁰

Science as part of a broad education

Mother and Sri Aurobindo both emphasised the importance of a broad education, an honouring of the two aspects of intellectual activity. They cautioned against a rush to specialise in science, or any other subject. “The humanities, mathematics & science are,” said Sri Aurobindo, “the three sisters in the family of knowledge and any self-respecting system of education must in these days provide facilities for mastery in any one of these as well as for a modicum of all.”¹¹ Mother would say, “To know how to read and write, to speak at least one language correctly, to know a little general geography, have an overall view of modern science and know some rules of conduct — this is indispensable for living in a group or a community.”¹² “I believe,” she said, that “there are general faculties and that it is much more important to acquire these than to specialise..”¹³ Intellectual breadth was not, she thought, something that was acquired at the cost of excellence.¹⁴ In some respects, Mother’s

⁷ Evening Talks recorded by A,B Purani, 25 December 1939

⁸ CWSA, Vol 1, The National Value of Art, p449

⁹ CWSA, Vol 1, The National Value of Art, p449

¹⁰ “We have already indicated the double character of intellectual activity, divided between the imaginative, creative and sympathetic or comprehensive intellectual centres on the one side and the critical, analytic and penetrative on the other. The latter are best trained by science, criticism and observation, the former by art, poetry, music, literature and the sympathetic study of man and his creations.” CWSA, Vol 1, The National Value of Art, p449

¹¹ CWSA, Vol 1, p 361

¹² CWM, Vol 12, p 246

¹³ CWM, Vol 6, p 18

¹⁴ “It is said and repeated, and there are people who will prove it: to do something well one must specialise. One must do that and concentrate. If one wants to become a good philosopher, one must learn only philosophy, if one wants to be a good chemist, one must learn chemistry only. And if one wants to become a good tennis-player, one must play only tennis. That’s not what I think, that is all I can say:” CWM, Vol 6, p 18

comments could be viewed as a classic defence of a liberal arts education system, a caution against forcing young minds into premature academic specialisation.

The emphasis on breadth in young minds was at least partly practical, to equip youngsters with a broad range of skills as they encountered the world. Mother wrote to one student, “It is only when we have a strong background of knowledge that we can face life successfully.”¹⁵

The importance of current science in schools

Around 1910, Sri Aurobindo began sketching out ideas for a system of national education in a series of essays. The series was never completed. That said, the essays he did publish gained significance for the indications they provided on key matters. This included his three principles of “true teaching” (with their ready application to mental education).

One of Sri Aurobindo’s essays speculated on what a national system of education would mean for science teaching. “Does it signify,” he asked rhetorically, “that we are to reject modern truth and modern method of science because they come to us from Europe and go back to the imperfect scientific knowledge of classical India...”¹⁶ Obviously, the answer was no. What he sought was an honouring of the spirit of India in a system of national education that kept “abreast with the march of truth and knowledge...” Education, he said, “must be therefore up to date in form and substance and modern in life and spirit.”¹⁷ The thing to be avoided was a slip in to “retrogressive sentimentalism,” a slip into doing things in schools because they had always been done that way.

Science as mental education

Science’s role within mental education (to use Mother’s fivefold classification of fields of education) is clear. The first phase of mental education as Mother conceived it was the “development of the power of concentration, the capacity of attention.”¹⁸ Sri Aurobindo’s view, recorded forty years prior to Mother’s, was remarkably similar.

In ‘The Training of The Mental Faculties’ Sri Aurobindo spoke of the need to develop a mind’s ability to observe and concentrate closely: “The first thing the teacher has to do is to accustom the pupil to concentrate attention.”¹⁹ This would be followed by the cultivation of memory and the ability to assess and judge that which was being concentrated upon.²⁰ It was in the development of these essential faculties- observation, concentration, memorising, judging data and generally developing the “scientific habit” - that science was important. Sri Aurobindo used botany as an illustration for his views, saying that a child could be introduced to different flowers and encouraged to master the differences in an attentive, scientific manner without cramming the child with information and jargon. Such an approach would, he said, “lay the foundations of botanical knowledge without loading the mind with

¹⁵ CWM, Vol 12, p 246

¹⁶ CWSA, Vol 1, p 419

¹⁷ CWSA, Vol 1, p 420

¹⁸ CWM, Vol 12, p 24

¹⁹ CWSA, Vol 1, p 404

²⁰ CWSA, Vol 1, p 405

names and that dry set acquisition of informations which is the beginning of cramming and detested by the healthy human mind....”²¹ He saw other sciences such as astronomy, geology, zoology and chemistry being profitably taught in the same way.

For Sri Aurobindo, the key to effective science teaching was to avoid burdening young minds with the “heaping... of formulas and book knowledge.”²² When discussing this approach Pavitra, the former Director of the Ashram School that Mother appointed, said, that cramming of information and formulas into young minds was ineffective. Knowledge was really assimilated only if the student was “able to forget it and regain it himself. It is this creative discovery of knowledge which should be the aim and means of education.”²³ Pavitra’s comment provides a neat summary of how Sri Aurobindo envisaged science should be taught to young minds.

Science as an aspect of other parts of education: "It opens a door onto another reality."

There are interesting allusions from Mother on the contribution that science can make to other aspects of education such as, for example, vital education. But perhaps the most intriguing point Mother highlighted was the ability to use science, and scholarship in general, as aspects of psychic and spiritual education and, in particular, to get closer to her.

In a brief exchange in 1966, a child asked her, “How can mathematics, history or science help me to find you?” She replied:

“They can help in several ways:

1. To become capable of receiving and bearing the light of the Truth, the mind must be made strong, wide and supple. These studies are a very good way to achieve this.
2. If you study science deeply enough, it will teach you the unreality of appearances and thus lead you to the spiritual reality.
3. The study of all the aspects and movements of physical Nature will bring you into contact with the universal Mother, and so you will be closer to me.”²⁴

This exchange was significant enough for Mother to discuss it with Satprem the same day: it bears mention in *The Agenda*. She told Satprem that the boy’s question had prompted a recollection of her own teenage years when she was first told that everything was comprised of atoms: “I remember, the first time I was told that, it caused a kind of revolution in my head, bringing such a sense of the complete unreality of all appearances.” Because of this realisation, Mother offered the following reflection about science: "It opens a door onto another reality."²⁵ The sense of marvel that Mother conveys in her observation is clearly something that science education should strive to pass to students.

²¹ CWSA, Vol 1, p 405

²² CWSA, Vol 1, p 406

²³ Education and the aim of human life (2014) by Pavitra, p 60

²⁴ CWM Vol 12, p247

²⁵ Mother’s Agenda, Vol 7, p 297