E. C. G. Sudarshan

My research as my *sadhana*

When I was about twelve I read portions of the college textbook of physics that my elder brother was using. In it I came across the formula for the period of swing of a simple pendulum. It appeared very remarkable to me that by using mathematical equations of motion, one could compute the period and then verify its validity in the laboratory, or on the playground! This wonder of theoretical physics – to be able to predict the values of physical quantities using pen and paper – continues to be a source of wonderment and joy. Such are the isolated but significant episodes that shape our life's path. I went on to study physics at the university and later at research institutions; but I owe my commitment to the simple pendulum.

The amazing thing in science is that the theoretical insights are verified experimentally. Experience is the final arbiter, however elegant the theory. Experiments, however, cannot be usefully carried out without some theoretical framework. And as in other contexts, a benevolent mentor and worthy co-workers are very desirable. But despite what other people say or feel, ultimately you have to arrive at your own conclusions. I was privileged to work with a great teacher and guide for my doctoral work. In turn, I have been

a guide to a score and ten students, some of whom are smarter than me, and in turn act as my mentors on occasion.

These observations, gleaned from my journey as a scientist, are intended to show the roles of mentor, theoretician and experimenter in the pursuit of pure science. All of them are essential. They appear as common elements and fundamental to the modes of exploration and discovery which the human mind follows through various disciplines of enquiry. In addition, there is the element of subjectivity of the individual who is pursuing the enquiry. You are happy to have others agree with you but they may not, and you have to make your own decision. Moreover, in creative science all objective assessments are subservient again to your subjective assessment of those making the assessment.

Such relative principles – of the subjective and the objective, of theory and experience, of mentor, philosopher and practitioner – obtain in the domain of spiritual discipline also in a similar way. You may read or listen to others, develop a cosmology in your inner space, but ultimately the truth has to be validated in experience. And the final judgment is your own. I was privileged to spend extended periods in discussion with a most outstanding and affectionate person, who used to say "I tell you, don't follow anyone, don't listen to anyone!" We pointed out that in that case we should disregard his own words. He resolved this paradox by saying that as long as it was "another person" you were hearing, you do not follow it unless you hear your own self tell you to do so.

There is this anecdote about a severely ill patient being declared dead by a well qualified physician. Subsequently two attendants put his body on a stretcher to take it to the mortuary. On the way the patient wakes up and asks the stretcher-bearers why they are taking him to the mortuary. They tell him "Who knows better whether you are alive or dead: you, or the doctor?" People sometimes react to someone else's spiritual path in the same way: Who knows better, you or the others?

In general, objective assessment is held to be of such paramount value in science that it often seems to say "Don't trust yourself but trust others." However, when science operates in the domain

of insight and creativity, and functions beyond the usual mind, the scientist steers alone, with subjective experience directing the course of his work. On the other hand, the experimental validation of theoretical structures is something that spiritual disciplines also demand. In turn, these experiences, in either discipline, enlarge and extend your theoretical structure.

Then again, in scientific creativity as also for spiritual insights, while you can recall a time when you did not know, the moment the experience arrives, it comes not as a strange one but something that feels totally familiar. It fits into your experiential fabric. Your own feelings say that it was not you who brought about the insight but that it happened in an *impersonal* domain. You do not feel proud; the only discernible reactions are awe, gratitude and joy. It is for the sake of such opportunities for this wonderful life-experience that in addition to my own research, I guide research students. Ultimately it is their own discovery. The fact that they have been guided towards it or have heard or read about it, does not diminish the glory of the experience. And when I have a second or third such opportunity, they don't appear to be disparate to me, instead I have a sense of the same extraordinary functioning continuing without interruption. For most of us who have been enthralled by a sunset, each time we witness it, it is the same as the first, not different. Time and chronology take on a new texture. And this functioning is joyful and totally familiar.

It is the same sense of joyous wonder that fills you each time on seeing a newborn baby, especially so if it is your own. You feel privileged to be in on creation, and all your knowledge of physiology and embryology detracts not a whit from the wonder. No less is the wonder that comes upon seeing a new grandchild. When I held my first grandson in my arms, the joy was indescribable. And again the same experience returns with subsequent grandchildren! It is the same modality of awareness functioning without a break and comes from the same, somehow familiar and impersonal, domain.

These peak experiences, embodying a singular sense of wonder are after all accessible in our lives. Yet, why is it that this realm is not acknowledged, and not pursued? Partly because people have

been told that such pursuits are unscientific or unsuited to a rational intellectual person. And like the mortuary attendants, they believe what they are told. Needless to say, not every path is suited for everyone; it is here that a mentor or friend can be of help as in any other pursuit. However, there is one other serious worry for the rational scientist. Would the spiritual path detract from scientific or intellectual activity? Would one get "blissed out"? Would there not be such a risk?

Well-wishers and good friends have often asked me "You are a pretty good scientist: Why do you waste your time with all this nonsense?" (One self-proclaimed intellectual even wrote an article psychoanalyzing me in absentia. He "forgot" to send me a copy or discuss it with me in person though we meet often.) How can I explain such "waste of time"? Some days ago I was at a Yoga conference and spent four precious days there which I could have used to pursue "science." But what my colleagues may not know is that I got to spend time with an aeronautical engineering professor, a chemistry professor, a physics professor, a psychiatrist and a neurosurgeon, each of whom I hold in great esteem. Most of my bemused fellow scientists are too busy for such gatherings: they are afraid of others and even afraid of themselves.

My purpose here has been to emphasize the experimental aspect of the spiritual path. True, there are many excellent scientists who have no interest in spiritual experience. A good friend who is a great scientist once told me that he had invested too much in his world-view and that he dare not embark on a path that may change it. I respect his choice. The majority of the disapproving tribe are, however, intellectually lazy.

While every path cannot be for everyone, I am amazed and sorry that most of the world's intellectuals neither know the beauties of the "nine-point circle" of a triangle nor the wonderful world of analytic functions – things worthy of exploration. In the will to explore there are of course choices which one has to make, just as I had to choose physics instead of microbiology. So also there are different paths in spiritual exploration.

To summarize: Why the spiritual path? Simply because it is a source of joy and wonder, in the same way that the life of research

leads the scientist to the source of joy. Do we trust every self-proclaimed spiritual adept? No, but then we do not trust every self-proclaimed scientist either. Does the spiritual path detract from your scientific creativity? Not that I have noticed.

In fact, scientific research at its best, is also a spiritual *sadhana*. Perhaps one who recognizes this is on the spiritual path, whether he admits it or not! I hail from a region where there is a lot of water and boats are aplenty. One lesson taught to us was that if you put your two feet on two different boats you must be careful. That advice may be relevant in the present context also.

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FAITH

in the age of uncertainty

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