

CAUSALITY AND GRACE

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I WOULD LIKE to talk about the synthesis of science and religion not because of any principles, which will tie them together, but in terms of something you can practice. I am a physicist and in physics we believe that experiment is an essential part of science, but it is not the only part. There is also the theory which will tie the things together. So it is a two-legged march in which one leg is the experimental investigation of the world around us, and the other leg is the formation of these observations, which codify them into a theoretical framework and find connections between them. At the present time, when we say that we are doing an experiment, much of the theory is assumed. Similarly, when we say we are trying to maintain experiments, so much of the known experimental facts are taken as parts of the given, and it is only within that framework that you talk. I would like to say that the same thing is true with regard to any pursuit one might undertake.

Life itself consists of two segments — a segment of practice and a segment of interconnections. In particular, any key investigation into any subject contains not only the systematic work that acquires data, and knowledge accumulated from data of other people, but also the part in which you find interconnections between them. A systematic structure of knowledge is thus evolved.

However, in this construction of knowledge, one finds that there are two ways of knowledge-building. One is a logical mode, which is sequential. In this mode we know all the steps that we have to take and at every step on the way, we know how the

conclusion is related to the premise. It is very much like walking from one place to another. You can retrace your steps.

But there is a second form in which our knowledge seems to grow by leaps and bounds and this is by insight. The insight is very much like an airplane in which you suddenly find yourself in a different territory. Once airborne, you suddenly see the whole landscape. It is very much like walking at night with a flashlight, painstakingly seeking your way through the stones and rubbles along the way. You do not know what lies ahead, whether it's a hill or a valley, whether it's a narrow road or a wide path. Then a bolt of lightning illuminates the whole landscape (though only for an instant) giving you a clear view of the whole landscape.

I have tried to distinguish the second method of gathering knowledge, call it hindsight or insight, and I shall try to relate the reality of such a thing and possibly the mechanism. Those of you who are more familiar with artistic, poetic and aesthetic accomplishments could also say that the same kind of thing is applicable to those pursuits. And one finds that, in one moment of one's life, insight descends upon and lifts one up to a certain level rather than one's systematically getting it.

One of the things that is noticeable about insight is that the insight itself is out of time and space, not that you are out of time and space, but the insight seems to be unrelated chronologically or spatially to anything else that you have at a particular time. It is free standing and at the same time it is a source of a great joy. All knowledge, of course, leads to happiness. But in this case, it is a wellspring of happiness which suddenly overcomes one. And at the moment of the insight there is neither a clear logical connection with whatever steps one might have taken nor a great desire or anxiety to connect it, logically, to anything that one knows. One is happy that he or she has understood.

The great mathematician and physicist from around the turn of this century, Henry Poincaré¹, tells us of an incident when

¹ Henry Poincaré, *The Foundations of Science*, pp.387-388.

He was about to board a bus. He had stepped on to the bus with one foot but the other foot was still on the pavement. At that moment, he had a total insight into a small abstruse branch of mathematics. He said that he saw the whole theory in that one instant, complete with all the details, though he had no idea why that thing came at that time. That is, between the first foot and the second foot of getting onto the bus he had the whole theory revealed to him. Notice that unlike some other mathematicians like Euler or Ramanujan, Poincare did not use any mystic or archaic terminology for the thing, his statement was that the whole theory became clear to him in that one moment. I am sure that there are many persons among the audience who have had personal experience of things of this kind, which may not be epoch-making but were significant. This is not like a complicated piece of work that one has accomplished, in which one takes great pride. In the case of such a great insight, one does not take any great pride. Instead, one feels very happy. At this moment of discovery there is not even the slightest feeling within you that this discovery is made by you. If you have to say anything, you will say that the discovery found you', rather than 'you found the discovery'.

So, in some sense, quite in contrast with the more or less ostensible pride that we feel out of that accomplishment in normal discoveries and creations, here the feeling is one of humility and awe, rather than that of pride. There is no authorship for the thing, but you feel that you have been especially favored by this discovery coming to you. Those of you who have children, of course, would have felt the same experience, especially when you had your first child. When the child is born and you see the child doing things which are very elegant, very cute (of course everybody's child is special), you suddenly see that, in fact, a great miracle has happened. You know that you must have had some part in it, especially when people say that the baby looks just like you. You feel that the miracle just happened to you. You did not create it. You happened to be partially, obliquely responsible and involved in the thing, but the miracle descended to you and you

justifiably accept other people's congratulations and then you say, "Yes, it is a great blessing."

But if you have no connection with such insights, how did it come to pass that it came to you? Why does it awe you when the discovery comes to you? Why does it make you immensely happy? And how does it happen that you know it so completely with all the details, or as we say in the United States, "with all the bells and whistles"? It is not as if you know the general idea and you have to work out all the details. It comes complete. We should really work out a cause and mechanism for the thing. This mechanism, which is unseen, undetected before, is sometimes called 'Grace'. In Indian terminology, it is called quite appropriately, the '*adr̥ṣṭa*', meaning that which is not seen. The Vaiśeṣikas in their classifications called '*adr̥ṣṭa*' an essential part of the universe. In languages like Kānāḍā '*adr̥ṣṭa*' is used for luck. '*Adr̥ṣṭa*' is that which you cannot see but you insist that there must be a cause for it.

It is in some sense an absolute intelligence reaching out to our limited intelligence in some fashion. What is even more interesting is that once you have overcome the awe, it is not unfamiliar. It is in fact very familiar, intimately familiar, to you. I am told that in other cultures it is called '*varaka*' or 'grace' or '*śrī*'. This particular aspect of the thing is the limitation of the causation in which you invent a cause for things for which you know there is no cause. But yet it is very familiar. When you have a second experience that has exactly the same kind of insight and the same kind of genuine creativity, you do not say "Oh my God! There is another one of those things!" You feel it is the same thing.

You have come home again from vacation. You have been out in the world where you have been toiling and working but you have come home. That is a natural state in which one should exist, so one is given a certain choice of belief systems. One belief system is to say that this is in fact one's natural state. This is the state intended for you. This is the state which should be yours

but somehow or the other because of our preoccupation with other things we are proceeding by laborious methods. We are not using the elegant method by means of which we can reach this particular state of insight.

The other possibility is to say that there is a power which we would not like to identify with our limited self, a divine power, a benevolent power, the Absolute, which is out there, which is all intelligence, all creativity and which reaches out to you provided that you are in a receptive mood at that particular time. It is always there like the sun, but when the clouds go away, the sunshine comes through. In this particular condition you become aware of the thing, and you feel that in some sense you have a close relationship with it. It is not as if it is a strange thing.

When you see the sun, first thing in the morning, it is very brilliant and your eyes are unused to the brilliance after the darkness of the night. But when you see it you feel happy and as the Beatles said, "It is all right when the sun comes up, you feel everything is all right." So it seems to me that creativity in its finest form contains something that we cannot normally explain by the normal algorithmic process of discovery.

It contains a non-algorithmic process, a non-algorithmic operation. Half the work is yours and half must be left to divinity – *'tan pati devam pati'*. In other words, you have to do your work as much as you can but then the grace will function in such a fashion that knowledge comes to you. I will give my own example. You have worked on a problem that is really important i.e., something that you have really thought about for a long time and on which you have worked very hard. You want to arrive at the result. However, you are not getting anywhere. You have done everything that you can. You have even sharpened all the pencils. You have had a shower and walked around in the garden. None of these things help. The best thing is to forget about it or go for a very long walk. Better still, go for a classical music concert where your mind is completely put to rest. And then suddenly, out of nothing the whole illumination comes. Those of you who have

taken buses in India or in the United States, know that getting into a bus is not a very pleasant experience. So, I would not recommend this as a method of total discoveries even though it was, in the case of Poincare! Instead I would suggest that any method by means of which you feel completely at ease is a mechanism by which one could facilitate the functioning of grace.

Therefore, I would like to say that the functioning of grace is not exclusively a religious experience, if by being religious you exclude scientific, artistic, creative, literary and aesthetic experiences. It is experienced in every serious endeavor. Since this is the best of one's experiences, I would say that in these behaviors and in these aspects one finds that science and religion are already synthesized. We do not have to go ahead and synthesize it. We only have to synthesize it in our expression, our statement about our testimony and about the functioning of the discovery. I am afraid that I have not made observations here very scientifically but I hope that I have communicated to you from my heart about my functioning as a scientist and that I have made remarks about what I know.

THOUGHTS ON SYNTHESIS
OF
SCIENCE AND RELIGION

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