

SCIENCE, PSYCHOLOGY AND PHILOSOPHY

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Shakespeare's *Hamlet* is a wonderful work, which, although four centuries old, still inspires modern humans in many ways. One particular incident in that work provides the insight for the introductory remark I would like to make. Hamlet's father, the King of Denmark, is no more. The prince is in deep grief and utter despair over the loss of his father. He has almost lost his mental balance; he behaves rather oddly. Surely the prince has gone mad, said many. But Polonius didn't quite agree with the rest of the folks. He said gently, but firmly, about Hamlet's queer behaviour: "Though this be madness, yet there is method in it."

Even madness is tolerable, and even appreciable, if there is *method* in it. The emphasis on employing *advanced methodology* in the search for knowledge is a characteristic of the *advanced modern mind*. It is reflective of the transition from the *pre-scientific* to the *scientific* era. Throughout history humankind has constantly and persistently strived to perfect more advanced methods and techniques of inquiry. In this process the old, "lame" methods of inquiry were gradually discarded and more reliable methods were adopted. In other words, in today's world it is generally accepted that only *disciplined inquiry* or *scientific inquiry* can give us valid, reliable knowledge. Disciplined inquiry is inquiry conducted with the *scientific attitude* and which employs the *scientific method*.

Seminary education has a number of short and long term objectives. Important among these are the imparting of training in the search for knowledge and truth, and the equipping of students with the necessary knowledge and skill to serve humanity. My argument is that the traditional methodology employed and the traditional disciplines taught may often prove to be inadequate in attaining these objectives in the present socio-cultural and intellectual milieu. It is time we realized that in the modern world there are other methods and other disciplines that are equally or even more qualified to accomplish the above goals. It is also argued that pastoral ministry, priestly and religious formation, and providing leadership to laity in socio-cultural, educational, and other intellectual fields are important areas of the church's ministry, and that the new methods and the new disciplines can make a significant contribution in this regard.

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The training of the seminarians must be such that we create in these young minds a passion to know truth through *disciplined inquiry*, and the courage to live that truth. Particularly in the Indian context, people live in the midst of ignorance and a multitude of superstitions, unhealthy customs, and traditions. The seminarian must be convinced that falsification or distortion of facts cannot hold ground for long. One cannot fool the people forever. Sentimental attachments or personal bias should not stand in the way of acquiring true knowledge. The urge to free oneself from falsehood and ignorance, and the passionate seeking after true knowledge must be kindled in the heart of every seminarian. They in turn will implant these in the hearts of the people they are asked to take care of during their ministry in the future as pastors and formators.

I can foresee the reaction of those who handle traditional subjects. Their rejoinder will surely include an emphatic and uncompromising reference to the transcendental nature of human beings and the ultimate reality. Without denying this key dimension, it should, at the same time, be also noted that modern human beings' major concerns are revolving not around some extra-mundane, philosophical issues, but around the concrete problems of their very existence in this world. Moreover, most people believe that the "transcendentalists" have nothing *new* to offer; their writings merely echo what others before them have already said, centuries ago. The bottles are new and the labels are attractive, but the content is the same old stuff.

The breath-taking progress in the modern world has brought about a tremendous change in human beings' attitudes and values systems. The *scientific attitude* and the *scientific method* have replaced the traditional attitudes and traditional methods. Speculation and insight, blind faith, appeal to authority and tradition are no more acceptable to modern humans as *methods* or means to gain knowledge because none of these can claim to be methods of *disciplined inquiry*. Disciplined inquiry alone can gather data systematically, formulate hypotheses and verify them, and formulate theories. Knowledge gathered through disciplined inquiry or the application of the scientific method enjoys many advantages. In this method, for instance, variables can be *controlled*, data can be treated *statistically*, and the study or experiment itself is *repeatable*.

The controlling of variables is a vital aspect of any disciplined inquiry. Answers that are the fruit of mere armchair speculation may not enlighten us always; these answers may be lacking in objectivity and credibility. The

particular conditioning that the speculative thinker/author has been subjected to, his/her own personal bias, the bias of his/her own culture, religion, and class may all influence him/her in the formation of his/her views. Through the manipulation of the relevant variables we can eliminate the grounds of many faulty assumptions. Thus we can objectively show that the variation in such and such a dependent variable is the result of variations in such and such independent variables. Thus through the proper controlling of variables it can be convincingly shown that the backwardness of the lower castes in India or the blacks in the U.S. is the result of generations of social, economical, and educational discrimination and deprivation. A scholar in Indian philosophy who knows the use of nothing but the speculative method based on the scriptures and the pronouncements of ancient authorities may still parade all sorts of arguments to prove the veracity of the age-old beliefs and practices. In fact, the scientific method of controlling the variables can be used in identifying the causes of many a phenomenon that has baffled and misled humanity for centuries.

Quantification and the statistical treatment of data have become today part and parcel of the method of disciplined inquiry. Sweeping generalizations often reflect the bias and/or ignorance of the author. Measurement and quantification, on the other hand, establish facts undisputably. An investigator whose method to know truth is disciplined inquiry, cannot proceed without resorting to measurement and statistical analysis.

Repeatability, or the "check-up-ability"—as James B. Conant, the distinguished scientist and former president of Harvard University, calls it—is one of the most striking characteristics of a fact or theory established through disciplined or scientific inquiry. In most cases the scientific study or experiment can be repeated by others. That is to say, other investigators can repeat the study and check-up its veracity by following the same plan and procedure and employing the same tools or materials. Thus the veracity of a scientific fact established can be tested throughout the world and for years to come. Sometimes, as a result of such extensive and rigorous re-testing, established facts and theories have been successfully challenged and new theories have been introduced. Unlike in the case of speculative insights, the dethroning of an old theory has never been thought of as a humiliation or loss to someone or something. Rather, it would be hailed as a giant leap for humankind. In the "kingdom" of speculative thought, there will be a number of the so-called "authorities" around whom gathers a bunch of committed disciples, each school straining every nerve to show that its system alone is

the embodiment of absolute truth. Since "truth" is relative here, there arises rivalry between schools or systems. In the "kingdom" of disciplined inquiry, on the other hand, a scientifically established fact becomes the common property of humanity, and everyone rejoices in the common achievement of the human race. Hence there does not arise any rivalry, nor is there any need for arguments and counter-arguments.

Human knowledge, in order to be valid, must be verifiable. One reason why modern branches of knowledge like physics, chemistry, biology, medicine, engineering and astrophysics have made tremendous progress is that they have accumulated a large amount of verified knowledge. The major reason why philosophy, although much older than these sciences, has not made a comparable progress is that it depended solely on the method of armchair speculation and deriving insights from these speculations. These insights are, in fact, nothing more than *hypotheses* in the hands of those who make disciplined inquiry. These hypotheses need to be tested and proved. A group of philosophers, becoming fully aware of this "lame duck" nature of philosophy, earnestly attempted to make philosophy more scientific. The result was the innovation in philosophy called *Analytic Philosophy*. But even analytic philosophy could not redeem philosophy. Analytic philosophy started off as a way of moving from speculation to science—from philosophy as an historically based discipline to philosophy as a discipline centering around "logical analysis." However, this attempt failed as the notion of "logical analysis" and its purportedly "scientific" vocabulary turned upon itself as it failed to deliver the goods, and committed slow suicide. Some philosophy departments in the scientifically-minded United States, which had got disillusioned with the unscientific speculative method of traditional philosophy, adopted analytic philosophy as their torch-bearer and "redeemer," but this experiment also miserably failed.

Early humans' cognitive system was pre-scientific, easily susceptible to suggestion, and so superstitious. Human beings then lived in ignorance, confusion, and darkness. Thus philosophers in the past have wasted much time and energy trying to give answers to questions which baffled them, trying to resolve matters which were great issues for them but are non-issues today. Does the visible world really exist or not? Can we ever know the world? Is empirical perception reliable and valid? These are some of the "mighty" questions of the past with which great philosophers wrestled. But as everyone today knows, in the "Brave New World" of ours these questions are not even worth-considering; the existence of the world, human beings' ability to perceive the world through their senses and through the extension

of their senses, viz., scientific devices like microscopes, telescopes, thermometers, etc., and the validity of empirical perception are taken for granted. Disciplined inquiry always depends upon knowledge gathered through the sense organs. In other words, modern humans' agenda is different. The question is no more "Whether we can know the world" but "How can we know the world (and humans) better?"

We should also change our step-motherly attitude towards the sciences, including the behavioural sciences. Antagonism toward science as a source of valid knowledge stems perhaps from the unconscious acceptance of inferiority and the unconscious fear of defeat and loss of power before a powerful "foe." Science is never anti-morality or anti-humanity. The goal of all disciplined inquiry or science is the *acquisition* and *dissemination* of *knowledge*. Admittedly, knowledge is good in itself. Sometimes knowledge may *appear* to be a bad or harmful thing. This is not because knowledge in itself is a bad thing but because it has reached the wrong hands, and evil people make use of it to achieve their evil aims. A jet aircraft, although of immense benefit to humanity, can nevertheless become a deadly missile in the hands of a terrorist. Blindly criticizing modern knowledge, therefore, must be viewed as uncharitable, hypocritical, and prejudicial. Here one seems to uphold the slogan that "It is better not to know than to know." In science, on the contrary, the basic faith is that "It is better to know than not to know." Philosophy is unable to compete with science as a source of modern knowledge, because its adopting of a faulty, lame method—the speculative method—has prevented it from acquiring modern knowledge which is objective and verifiable. The mission of the modern researcher is to seek knowledge *actively* and disseminate it *aggressively*. Through disseminating the knowledge he has gained, a scientist both exposes it for public scrutiny and dedicates it to humanity for the benefit of everyone. Since knowledge is better than ignorance, knowledge itself is value. Disciplined inquiry, by all means and everywhere, removes the evil of ignorance and false knowledge and promulgates genuine values. If knowledge is a value, and if disciplined inquiry generates knowledge, then it follows that all elements, systems, or institutions that hinder or at least view with suspicion the knowledge acquired through disciplined inquiry, must be deemed as not interested in the pursuit of truth and the welfare of humanity. It must be admitted that philosophy and religious beliefs sometimes stand in the way of truth and real progress. One must be more than willing to abandon beliefs and positions in the face of contrary, incontrovertible evidence. In philosophy and religion one is supposed to *accept* the *error* if it comes from a great name and *reject*

the *true knowledge* advanced by an "insignificant" thinker. In disciplined inquiry, on the contrary, the name and fame of the author has nothing to do with the veracity of his findings; the crucial question will be whether the theory or findings rest on verified evidence. As disciplined inquiry alone can offer *social hope*, our students must be imbibed with the spirit of disciplined inquiry from the earliest days of their academic training.

One should concede that as far as human and natural phenomena are concerned, disciplines employing the method of speculation and insight are no longer serious candidates in the field of giving an explanation. The task of giving an explanation to these phenomena is completely taken over by science. In understanding the universe and all that is in it, supernatural explanations have no place today; it is the scientific explanations that illuminate us. For the modern human being, anything which is not based on evidence lacks credibility. Scientific theories, as they are based on publicly checkable evidence, have succeeded in winning the confidence of people. Religion and philosophy find their ideal in the apostles who wanted no evidence; but science and modern human beings hold up as their ideal Thomas who demanded evidence. In the speculative method, "truths" are established on the basis of private conviction or "intuition" or by appealing to authority. In disciplined inquiry, on the contrary, it is hard evidence that matters; private conviction or appealing to authority has no place there. Unless we take note of this change in modern human beings' attitude, we will be living in a fool's paradise.

As human beings are curious animals, they are impelled by the urge to know, the hunger for explanation. It is this great desire to know that gave birth to philosophy first and then to science. Now science and the scientific method have replaced philosophy and the speculative method as means to gain accurate, reliable knowledge. Unless this change is reflected in the seminary curriculum we will not be able to produce men and women capable of dealing with the sophisticated modern world. Here it should be born in mind that whatever is "modern" in modern philosophy and theology is produced by those "sophisticated" philosophers and theologians who had the courage and the patience to study the fruits of modern scientific research.

Sometimes, false doctrines offered by the speculative scholar may be very comforting to the believer. But our students should be taught that the "discomfort" of true knowledge is preferable to the "comfort" offered by false doctrines and private convictions. It is also true that some of the so-called scholars never want science to challenge their comforting doctrines

and prove their falsity. They never want people to discover the falsity of these doctrines and abandon them. But our motto should everywhere be: "Let truth prevail." The modern telescope and microscope, thus, have successfully exploded many a myth that humans upheld for centuries as valid explanations of natural phenomena. There is nothing wrong in telling the students that the awe-inspiring discoveries made with the help of the telescope and microscope are equally, or even more, revealing of the grandeur of the creator as the narration of miracles in the Old Testament or the mythologies of the Hindu Scriptures.

Yet I can foresee disagreements and objections here. Proponents of the traditional position will certainly argue that while disciplines following the speculative method make human beings aware of their own limitations and powerlessness and so aware of transcendental realities, those following the scientific method make, or are likely to make, humans feel self-sufficient, proud, arrogant, and devoid of the sense of transcendence and mystery. This view is not fully correct. A mother cannot expect the same ignorance and dependence from her adult son as she can expect from her infant son. It would be unwise to think that we can keep humanity at all times in its infancy level. As humanity evolves, its understanding of the ultimate reality, of the origin and nature of the universe and human beings, and its understanding of values also will evolve. One should admit that the new theologies and philosophies on God, heaven, human beings, personal and social values, and a variety of other things have appeared in the wake of new discoveries in the physical, biological, and social sciences.

Closed-mindedness is a danger, the development of which must be prevented at any cost. When students are not exposed to alternative worldviews, alternative methods of inquiry, and alternative perceptions of knowledge, closed-mindedness develops. A closed mind believes that it is in possession of absolute truth and that it has the exclusive possession of it. Religious fundamentalism and the education imparted in the madrasas will serve as typical examples here. A religious fundamentalist has a closed mind. His cognitive system is primitive, pre-scientific, and closed. To him the whole source of knowledge is religion, especially the scripture, and the utterances of his own fundamentalist leaders. As his rigidity in thought and perception does not allow him to expose himself to other sources of information other than the ones provided by his own leaders and scripture—the Vedas, the Koran, the Bible, the Torah—he persists in his ignorance and in his deviant experience. Intolerance of other people and other belief systems is deemed as a sign of authenticity and total commitment to one's

own faith. Any act, however inhuman or cruel it might be, when committed against the "enemy" becomes a holy act. As he sees it, extremism in defence of faith is a virtue; moderation in defence of faith is an act of omission and so a sin. Similarly, the education imparted in the madrasas is the most suitable one to produce a closed-minded person. The curriculum of these institutions is limited to instruction in the Koran and Islamic literature. (Incidentally, it is a welcome news that the government of Karnataka has recently decided to introduce forcibly in these institutions the teaching of mathematics and the sciences.) Unless students are given a training with a broader intellectual outlook, Catholic institutions too run the risk of producing anti-rational, closed-minded priests and religious year after year.

It should be clearly understood that we are no more training students of the dark Middle Ages but students who are supposed to live and work in the age of reason, the post-modern age of great science and great technology. The first to realize this fact was the secular universities themselves. They thoroughly revamped the college and university curricula, introducing more and more specialized, life-oriented courses in the place of the traditional subjects. The example of the secular universities should serve as an eye-opener to everyone concerned. Religion, philosophy, and poetry express truth only *symbolically*, which may or may not correspond with objective reality. In other words, they use the language of *metaphor*, which is often similar to a wild guess. But the modern human's mind will be satisfied with nothing less than precise, accurate, objective knowledge that has been tested and verified. Francis Bacon describes a case where an argument broke out among the friars of a certain community on the issue of the number of teeth in the mouth of horses. The argument raged for days and days; all the philosophical and theological tomes were examined, all the ancient authorities were quoted, but no solution emerged. Finally, one of the friars dashed straight to the stall, opened the mouths of horses, counted the number of teeth, and gave the definitive answer. This incident points to the superiority of the empirical method and disciplined inquiry in solving the "mysteries" of humans and nature which philosophy once attempted to do. Philosophy and religion often see nature as unreal or *maya* and as an *adversary*, but science sees nature as source of real knowledge and as *facilitator*. The preoccupation of today's human beings is not the question of how to understand the transcendental but the question of how to improve the quality of life. Today's ministers and formators must not lose sight of this shift that has come about in people's attitudes and concerns. The transition from the pre-scientific to the scientific era is an important milestone in the intellectual and socio-cultural progress of

humanity. Whatever "modernity" a modern philosopher can claim, and whatever it is that makes his philosophy different from the philosophy of his predecessors, is the result of his coming into contact with the knowledge that disciplined inquiry or science has produced and disseminated for the benefit of all humanity.

Of course the scientist does not, strictly speaking, claim to have direct or indirect knowledge of the ultimate reality. However, in the post-modern world of ours the quest for the knowledge of the ultimate reality forms only a small part of human beings' total quest for knowledge. Moreover, knowledge about the transcendental realities we already have in abundance; nor are we contributing anything new to this area. Only new explanations and fresh interpretations of what our "ancestors" have already said are possible now. Significant new discoveries or groundbreaking insights in the transcendental plane will be extremely rare to occur. This is especially the case with subjects like Indian philosophy. The ultimate meaning and purpose of existence is already made clear to humans; what they want now is the knowledge and the skill to tackle the manifold problems of existence, the ability to improve the *quality* of life in a concrete sense. The tragedy of philosophical education in the seminaries is that no serious attempt is being made to incorporate the fruits of modern knowledge in the curriculum, and for that reason philosophical education in the twenty-first century is mostly a replica of philosophical education in the nineteenth or early twentieth century.

I can guess the counter-arguments of those who still want to trek the beaten track. They are likely to point out the total chaos in the contemporary world and give apocalyptic warnings, arguing that all these are the result of the ignoring of the transcendental dimension and the placing of too much emphasis on material values. The great physicist Werner Heisenberg himself was acknowledging this fact when he observed that today man finds himself in the position of a captain whose ship has been so securely built of iron and steel that his compass no longer points to the north but only towards the ship's mass of iron. Philosophy and religion have so long tried to depict the inadvisability of an over-dependence on science, the scientific method, and the scientific attitude. Here we have to realize that the times have changed, and today not many would take seriously such warnings. It is better for us to come to terms with reality than behave like ostriches. While recognizing the limitations of science, we should also be humble enough to acknowledge the limitations of a blind faith. Today people prefer the certainty of the scientific method to the uncertainty and irrationality of the speculative method. Alfred

North Whitehead, as a scientist, cautions society against the proliferation of the symbolic and the metaphorical language. He says that the over-dependence on symbols, which have a tendency to run wild like the vegetation of a tropical forest, is a perilous thing. So also, the over-use of subjective opinions, symbols, and metaphors during the period of seminary training, I believe, will be an unwise thing. It will only end up in stifling the students' creativity and quest for objective knowledge. Only complacency and the urge to withdraw from the world of objective knowledge will be the result. That is why Whitehead advocates an occasional revolt against the over-use of symbolism. You may view the present paper also as part of this "occasional revolt" against the over-use of symbolism in seminaries. I am not arguing that philosophical speculations are mere "daytime reverie" or "idle fancy." My argument is that, because they employ the faulty method they are unable to supply the objective, advanced knowledge that people badly need today to tackle the innumerable problems of their daily life.

People employ different methods of inquiry during different stages of humanity's intellectual and cultural development. When more advanced methods are perfected, the older, less accurate methods are abandoned. The present age, honestly, belongs to the scientific method and the scientific attitude. The yearning for knowledge that is generated by disciplined inquiry must be seen as a concrete expression of the progress made by humankind. The New Spirit of Inquiry, which is associated with the Renaissance and which started in Europe as a reaction against scholastic thought and the speculative method of the philosophers, has today culminated in the development of the modern scientific method of inquiry, and it must be seen as an important stage in man's intellectual and cultural growth. Instead of depreciating this achievement of humanity, what we should do is to teach our students to see God working through human beings in all these amazing discoveries and be able to derive the ultimate metaphysical meaning behind these discoveries. The view that modern science promotes nothing but naïve materialism is too sweeping a remark. If properly interpreted and understood, the mysteries of nature that science unravels will only deepen one's faith in the Supreme Power behind all these marvels. In that sense, Einstein's famous equation, $E=mc^2$, may prove to be more potent than the description of miracles in the Old Testament or similar narratives in the Ramayana and Mahabharata. Instead of provoking a confrontation between science and faith, our task should be to strike a harmony between the two. Historically speaking, philosophy's sacred mission has always been to bring together human beings, nature, and the Supreme Being in a dynamic and sacred

synthesis; if properly interpreted and synthesized, modern scientific discoveries, including the new theories in the behavioural sciences, also can achieve the same objective. The advance of science and technology is irreversible and we now have to come to terms with ourselves in the new situation that we find ourselves in. Unless we develop a strategy to cope with this new situation in a meaningful and creative manner, we will find ourselves and our systems utterly irrelevant in a fast-progressing world.

With the second half of the twentieth century, human beings' pursuit of knowledge took a new turn. Gaining knowledge about themselves and the world around them, including the vast universe, became the major concern of humans. It involved the study of the human being's body, mind, social behaviour, and the rest of the natural world as it is of use/concern to humans. Thus subjects like mathematics, physics, chemistry and biology, and specialized areas like medicine, engineering, and computer science emerged as the major branches of knowledge in the modern world. Today the pursuit of knowledge is most intensely undertaken in these disciplines. At the second level emerged subjects like management, economics, commerce, political science, psychology, sociology, anthropology, etc. Philosophy and similar subjects, as sources of knowledge, were pushed to the periphery, and so these disciplines enjoy lesser status and demand today. These developments signify a change in human beings' attitudes and value systems. Today, as a source of knowledge men and women depend on those disciplines that depend on the scientific method, objectivity, quantification, verification, repeatability, and the other characteristics of science. The modern mind tends to accept anything that is scientific in nature and reject everything that is not scientific in nature. Naturally today's human beings, in their search for knowledge, are less inclined to look into philosophical tomes.

Defined then as "the study of the mind," psychology itself was originally part of the philosophical tradition. However, hard-headed men like John B. Watson, wanting to make psychology a science as objective and reliable as the natural sciences, revolted against all the mentalism and subjectivity in psychology, and eventually succeeded in making psychology a *science*—the *science* of *behaviour*. Today psychology is capable of *analysing* and *predicting* behaviour scientifically.

In short, the time for a paradigm clash and a paradigm change to occur has come. Our students should be trained to find the meaning of existence not by living in some abstract, non-existent, utopian dream-world, but by involving themselves in the actual problems of humanity—hunger, poverty,

illness, exploitation and oppression, injustice, violence and crime, anxiety and tension, the craving for the fulfilment of one's psychological needs, racial, communal, and linguistic tensions, bribery and corruption, and so on. In the handling of these and similar issues, again, merely gaining some knowledge from a secular university or college will not be sufficient. It is the teaching of the Christian approach and giving the students the right orientation that really matters. The Christian approach to these problems includes analysis of the problems from the Christian perspective and the development of solutions based on Christian values and principles. As far as current seminary education is concerned, the usefulness of the behavioural sciences is vastly underestimated. Today it is not uncommon among hardcore theologians and philosophers to view psychology as a "black sheep," as an "odd" newcomer, among seminary subjects. In their utter ignorance and prejudice some even speak of it as nothing but "nonsense" put in black and white. Here it must be remarked that only those who are out of touch with contemporary realities will adopt such a position. In this regard, the secular universities and colleges have shown us the way. Of late there has been a total revolution in organizing college and university curricula. Traditional subjects which were nothing more than a test of one's memory power are mostly discarded; in their place are introduced subjects that are utilitarian and heavily based on the fruits of modern scientific advances.

Any impartial observer would agree that insights derived from sound psychological principles have revolutionized people's understanding of almost everything that the Church deals with—God, human beings, society, body, mind, and sin. Psychology has been of tremendous influence in understanding the Bible, in formulating new guidelines in moral theology, in modifying the shape of religious life, and in shaping the new understanding of sexuality and marriage. Understanding the new discoveries in social, developmental, abnormal, and child psychology, theories of personality, guidance and counselling, learning, etc., will be of immense benefit in pastoral ministry, in formation, and in situations where leadership roles are involved. Today the principles of psychology are effectively utilized in almost every branch of knowledge and training—in education, in management, in medicine and healthcare, in social work, in criminology, in law, in childcare, and what not. Why should the education and training of the pastor, the formator, the superior, and the leader be an exception to this general trend?