

Science and Literature

Essay No. 01

POINTS TO DEVELOP

Confrontation between science and literature a relatively recent phenomenon.

Differences between scientific creativity and literary creativity: scientific creativity is objective, whereas literary creativity is subjective; the value of a scientific product is absolute, that of a literary product is relative.

Is science a product of reason only and literature that of imagination?

Science and literature do not work at cross –purposes: impact of literature upon science: impact of science upon literature.

Human life and personality draw sustenance both from science and literature.

Knowledge has killed the sun, making it a ball of gas with spots. the world of reason and science... that is the dry and sterile world the abstracted mind inhabits. D.H. Lawrence

A public that does not understand how science works can, all too easily, fall prey to those ignoramuses. Who make fun of what they do not understand, or to the sloganeering who proclaim scientists to be the mercenary warriors of today, and the tools of the military. The difference between understanding and not understanding. is also the difference between respect and admiration on the one side, and hate and fear on the other.

To talk about science and literature is to talk about human activity, broadly, in all its spheres, and also to talk about spheres, which are, according to common perception, antithetical to each other. The Random House Dictionary of the English Language describes literature as "Writing regarded as having permanent worth through its intrinsic excellence". Science is described as "a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws". The terms "intrinsic excellence" on the one hand and "study dealing with a body of facts" may well be the starting point for discussion. Here, roughly speaking, literature and science have been defined as dealing with the inner and the outer worlds of mankind respectively. Of course, one can cite numerous instances of overlapping, but one does get the idea that both science and literature, in a broad manner, are the two sides of the same coin- the human faculty. Literary creativity as well as scientific creativity have almost coexisted and developed with the progress of human civilization. In the ancient

times there was no clear-cut demarcation between scientific and humanistic activities. The paintings in the caves and the beginning of the use of fire were more or less simultaneous and complementary activities of man.

With the progress of mankind there has been a growing tendency to distance science and literature by the die-hard of the respective branches. One finds people making claims that science would not have been there if there had been no literary activity. It is so because, generally, literature is supposed to be about the dreams of man, his aspirations to soar higher and higher, his desire to catch up with the stars and the moon. Out of the dreams are produced deeds of man which are always able to meet a mere fraction of those dreams. Further, this leads people to associate science with reason and literature with imagination. One has to see whether both of them can be kept in such watertight compartments and whether they have anything to do with each other. But before that one has to analyze the similarities and dissimilarities between literary creativity and scientific creativity.

Claude Bernard said, "Art or literature I and science is we." A literary work has a very prominent personal mark about it. "The mind which creates and the man who suffers, "to lift a phrase from T.S. Eliot, both have a bearing upon the product of literature, on the contrary, scientific creativity tries to obliterate all personal nuances of the scientist. The focus is upon the created thing and not upon the creator. In fact, a scientist, in the long run, goes into oblivion because it is not always necessary to know about the man in order to understand his creation. But the same cannot be said about a poet or a novelist or a playwright sometimes it is almost impossible to understand a piece of work of literature without knowing about the background against which that particular poem or novel came into being. In other words, one says that scientific creativity is objective in nature, whereas literary creativity is intensely subjective.

The other basic difference between science and literature is that while the former has an absolute value, the latter's value is relative in nature. Newton's laws of Motion, Einstein's Theory of Relativity exist "there" separately and in most of the cases, of course with some exceptions, the merit of a scientific product is established by "itself". Pythagoras theorems are proved entities and one does not have to compare them to Newton's Laws to know which is better! They exist in their own right. But in literature the longevity and the merit of a piece of work have to be established in relation to other existing pieces of work. It is so because whereas science arrives at conclusions, at solutions which can have universal application, in literature there is a "particular" tone about it which can at best have a universal appeal. In order to have a better understanding of Shakespeare, for example, it is almost essential to refer to ideas of Aristotle on the tragedy and read the tragic works of Sophocles and other writers. It is so because a piece of

literature is open to numerous interpretations, subjective as it is, which may be even in sharp contrast to each other.

Though there are some differences in the scientific and literary creativity, yet the notion that only reason is the guiding force of science and imagination that of literature does not hold much water. It goes without saying that dreams to be translated into deeds have to have both reason and imagination, and deeds to be concertized must have both faculties. Reason without imagination and vice-versa cannot provide anything intellectually satisfying and of permanent value. One must remember that before being a scientist or an artist one is a human being – one who possesses both faculties. To be a scientist or a humanist of some reckoning both faculties have to bloom. If one observes a piece of scientific product say, a motor car, one can come to know how much of imaginative care has gone or a humanist had to develop his piece of work in a logical manner, in a rational manner so that his product satisfies both the intellect as well as emotion of the reader. The poems of the Metaphysical, French Symbolists and the imagists, with their wit and scientific imagery, can be cited as examples of this complex interactive working of imagination and reason. In the context, one should necessarily recall the theories of Aristotle about a literary work. Aristotle insisted that a narrative should have “a beginning, a middle and an end”. Further he insisted on following the Unities of Time, Action and Place in a narrative. No doubt a literary genius like Shakespeare could violate the Unities of Aristotle, but still even in the works of such “violator” there has been a logical and rational development of action because without this one cannot be convincing and successful.

Locke's theory, which appeared in the seventeenth century, about “human understanding” caused a stir when it stated that mind has no creative faculty of its own. It does not act, but only reacts to the experiences which it goes through in the outer world. This mechanistic explanation of human mind was resented, and rightly so, by the Romantics like Blake and Coleridge who went to the other extreme by hammering the point that man has a creative, an imaginative faculty of his own – and that is more important. Actually, reality stands somewhere between them.

At the outset it was mentioned that science and literature broadly cover all the aspects of human activity because they together cover two major faculties of human mind-imaginative and rational. That is why we have many instances of science influencing literature and literature anticipating science.

Stories concerned with the flight of human beings to the planets are very old in origin; the first was Lucian's true History written in the second century AD and others were written by Kepler (1634), Bishop Francis Godwin (1638), John Wilkins (1638) and Cyrano de Bergerac (1657). But these stories were only types of

voyage imaginaries and it was only in the nineteenth century that romances featuring space travel on a pseudo- scientific basis developed. The stories of Edgar Allan Poe, Jules Verne and in the twentieth century those of H.G. Wells produced a flood of that kind of fiction. Many of the scientific advances these writers imagined have, in fact, already been achieved. One can also say that modern day unmanned a remote-controlled spacecraft could very well have been anticipated by the one described as 'Pushpak Viman' in Valmiki's Ramayana. Thus, these works are living testimony to the fact that literary creativity sometimes anticipates and influences scientific creativity.

Similarly, the deism of the eighteenth century, reflected, though not without reservations, in Pope's Essay of Man, was at least as much the result of the mechanist ideas implicit in Newton's Principia mathematica as of Locke's Essay Concerning Human Understanding. In the nineteenth century the discoveries of the geologists led by Sir Charles Lyell, reinforced later by the evolutionary theories of Darwin and Huxley, led to a whole genre of which scientific discovery was casting on fundamental Christian beliefs. Another aspect of the theme of social and industrial reform in a mass of nineteenth century verse and prose fiction protesting at man's misuse of technology following the industrial revolution. Novels of Charles Dickens, Thomas Hardy, D.H. Lawrence, etc. in English literature are cases in point. In fact, scientific temper crept into English literary criticism also in the twentieth century. I.A. Richards' principles of Literary Criticism and practical Criticism tried to do away with the background of a poem while evaluating it and analyzed it as a clean state. T.S. Eliot also advocated that a critic's focus should not be on the "poet but poetry" and he wanted an artist to be as detached and impersonal regarding his piece of work as a scientist is during the creative process.

Having said that science and literature are complementary in nature, we can verify it with our personal experiences also. Scientific discoveries and inventions have made our life- our material life – quite comfortable. But material life is just one aspect of a human life. In fact, an over dose of materialism may make human life almost animalistic and human personality shallow. In the Waste Land, T.S. Eliot deplores the same devastating impact of materialism. To counterbalance it, to make human personality and life wholesome there has to be an equal dose of things which enrich the mental and the intellectual faculty of man. If the sensitive aspect of man is not taken care of there is bound to happen an imbalance between man and Nature. Here literature and the humanistic creativity do and should come to our aid. Notwithstanding the claim of C.P. Snow, the novelist, in his famous and controversial book The Two Cultures that science and literature are entirely two different "cultures". To sum up, one can say that though the very mass and intricacy of knowledge necessitate specialization, yet the search of all scientists and humanists alike is for truth. That search can be best described in the following lines with which William Blake begins his Auguries of Innocence:

**To see a world in a Grain of sand
And a heaven in a Wild Flower
Hold Infinity in the palm of your hand
And Eternity in an hour.**

Essay No. 02

Science and Literature

It is with the appearance of Lord Francis Bacon, the English man of letters, on the literary horizon that he aroused the intellectual conscience of Europe and made it realize the supreme importance of the physical sciences. The Industrial Revolution in England was the first recognizable great gift of science. Since then, the wonders of science have gone on increasing, tremendously affecting the human civilization in all conceivable ways. Even the literature did not remain unaffected by the progress of science.

Therefore, the literature which mainly concerns the human appeal, and the power to move us successfully, was moulded by the authority of reason which has grown more exacting and active, and which finds its direct and main outlet in science. But it must not be understood that this character alone defines the literature that followed the industrialism. The social life still remained very far from becoming a willing victim to serve the dictates of the scholars of reason. With the exception of scientific fiction based on popular scientific theories and forming a very small portion of modern literature, the overwhelming major part of literature is non-scientific. And, this is because, this world is not exclusively the world of the physical sciences. It is also a world of human passions, human aspirations, human values and human dreams. The exclusive cultivation of the physical sciences will make no serious contribution to human development. In strict terms of society love and loyalty, friendship, aesthetic, experiences, the tragic sense, the comic spirit, wit and humour, joys and pathos, nobility, dignity, self-respect, tenderness and sympathy, refinement of manners, warmth and sincerity will have no value at all. After all, science is only a highly evolved commonsense. But commonsense also concerns itself with many things of vital importance that lie outside the bare facts of the physical sciences.

Literature, it is said, is the mirror of society. It reflects all the currents and the counter-currents of thoughts and ideas extant at the time and tries to strike a balance or equilibrium between them. On the contrary, the science sets a goal of finding the truth; its formulae are linked together in a carefully balanced system. And so science provides the type of mentality that is essentially against sentiments and emotions which go a long way in forming our life and which find expression in

literature. Thus, literature defines the emotional tone of the period, whereas the science deals with the psychological tone of the period in question.

After the rule of emotions, dreams and the tumults of soul, there comes a time when the need of an order of reason begins to manifest itself; once again the desire for truth takes place among the motives of creation and the style becomes more careful. So, the moral pulse beats in agreement with the circumstances of the time. In an age of science, it is but natural that science will have way over literary impulses as the common man will always remain concerned with his material welfare, and consequently literature also reflects the joys and sorrows of the common man. This sort of interplay of science and literature helps in the creation of literature which is purely materialistic and does not form a part of pure art. It is a well-known fact that since the sixteenth century science has become a growing rival force besides religion and arts; during the eighteenth century it ceased to be the privilege of an elite, and awakened an interest in the mind of every cultured person; about the middle of the nineteenth century, it came to hold a place of primal importance among the intellectual pre-occupations of the average man. It proves its worth by the control it exercises over the physical universe, and also, by the idea of unity which offers or promises to innumerable seekers in the many branches of knowledge. It gives power, and also the satisfaction of logical thinking; it holds supreme sway during this new age. It helps the progress of production and is promoted by it in return.

The more important influence of science over literature has been that the language has become simple, direct and to the point. Everyone appreciates simplicity and ease in language, no oblique references or roundabout way of saying things is to be tolerated now. Literature has, thus, acquired a scientific attitude and this is in keeping with the age of scientific developments and technology. Euphemism and stylistic approaches have been discarded once for all. Thus, science has had vital influence over the literary activities of the day.