

Comment

Responsible Conduct of Science: A Social Science Perspective^{*}

Syed Jaffar Ahmed^{**}

One feels obliged to begin with recording one's feeling that a conference on the responsible conduct of science, which seems to be the third conference in a series, is a highly commendable and timely effort. It is believed that now that this theme has been floated for discussion, informed discussion would take place across the country on a neglected area of academic inquiry. In this modest paper three themes would be presented for discussion and a few remarks would be made in order to highlight what one believes could be the major issues in this regard. First, there is need to understand the nature of relationship between the natural sciences and the social sciences. Second, one needs to conceptualize what responsible science stands for, and finally, how both of these apply to our society and in what manner Pakistani society can be reformed through close cohabitation of different sciences, natural as well as social.

While talking about natural sciences and social sciences it is often assumed that they represent two quite different and opposite worlds. Their consequent worldviews and paradigms are also assumed to be distinct and often contradictory. This apparent dichotomy was never established logically and philosophically. It is more apparent than real. Yet it exists and this has been harmful in many ways. This assumed dichotomy has prevented even some of the most learned people to take these two branches of knowledge separately and distinctively. C.P. Snow wrote in 1965 about two cultures of sciences and social sciences and lamented the indifference and ignorance of non-scientists who are well-

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^{**} Dr. Syed Jaffar Ahmed, Professor and Director, Pakistan Study Centre, University of Karachi.

versed in humanities but are unable to realize the intellectual and artistic context of modern science. One may endeavour to locate this imposed disjointedness historically. The manner in which knowledge developed over centuries, shows that there was not much of this disconnect for centuries. In fact, knowledge had a unified existence which represented the unity of life and existence. But, then in the 20th century, the fast pace with which the science advanced, and the knowledge pool increased massively, brought about distortions. Compartmentalization came in the name of specialization perhaps with some legitimacy, too. As the pool of knowledge became richer this specialization, also grew so much so that the pursuit of maximization of knowledge in a given academic discipline was thought to be possible only through dissociation with the rest of the overall body of knowledge. Thus, there came about bifurcations, divisions, and a split world of knowledge. The first and the foremost casualty of this bifurcation was nothing else but the education system which institutionalized compartmentalization and thus created split personalities and split worldviews. It was a recipe of chaos and of the creation of alienated individuals or one-dimensional man.

It is interesting that the reality of a broken life was realized as soon it was created. Therefore, at the very beginning of the 20th century while, on the one hand, the above-mentioned fissiparous tendency emerged, on the other hand, there also emerged thinkers who indicated where the world was about to go following the new trend in the world of knowledge. In 1932, Whitehead came out with his profound work, *Aims of Education*, which underlined the importance of the unity of disciplines. Highlighting the common purpose of science and liberal arts, he observed that 'both sciences and arts are essentially the expression of human spirit'. To Whitehead, universities were the places where this expression could get its best realization. He, therefore, emphasized reformation of the universities and the educational system, in the light of the underlying unity of various disciplines.

Whitehead was not alone in the quest for realizing the unity of knowledge. A number of other wiser people, social scientists, literateures and scientists, suggested that sciences should be seen through the prism of society. Science is actually meant, for the people: it is for them that it works and it is for their well-being that science should be geared.

Since C.P. Snow's work, both academia and professional science has changed profoundly keeping with dramatic economic and socio-political changes occurring all around the countries of the world. One no longer can complain about the fact that non-scientists have no opinion on scientific matters. Now, subjects such a History of Science or Philosophy of Science or Science Studies have become well-developed subjects in

their own right. Scores of organizations have been established which work to bring two sets of disciplines closer, emphasizing their inherent correlation. The Society for Social Studies of Science (4S) has been working for over three decades now. The History of Science Society (HSS) has been actively involved in research for the last 87 or 88 years. Then, there are numerous journals which disseminate research highlighting the convergence of sciences and social sciences. For example, a research journal, *Social Studies of Science*, has published forty volumes so far. Similarly, another journal, *History of Science* has acquired a prominent place for itself for its high class articles.

The most important and significant impetus to the science-society correlation came when it was feared that science could be used against mankind and against society. The United States' decision to drop the curtain on the Second World War through dropping bombs on two cities of Japan, Hiroshima and Nagasaki, raised a number of questions about the use and misuse of science. It was asked whether scientists are socially neutral, are they the detached beings, or are they merely soul-less creators. The events of Hiroshima and Nagasaki were first opposed by the scientists themselves. An event of great historical significance was the beginning of the Pugwash Movement, which was aimed at reducing the danger of armed conflict. It started from a private initiative with the holding of a meeting in 1957 in the Canadian village of Pugwash. It was hosted by American philanthropist, Cyrus Eaton. Earlier, a manifesto was issued in 1955 by Albert Einstein, and Bertrand Russel, highlighting the need for the rightful use of science and denouncing its misuse. The Pugwash movement has held more than 270 conferences so far. It is a precursor of innumerable peace initiatives across the world in the subsequent years. The accumulative impact of all these initiatives is a world-wide peace movement. This movement may not have succeeded in stopping the arms race and the flourishing of the arms industry yet it has not been totally ineffective. Its major contribution is the creation of an overall consciousness of peace across the world. The work of peace has also been institutionalized. Peace networks have been established and both scientists and social scientists are playing pivotal role in them.

Coming to Pakistan, there is a need to realize certain important facts of Pakistani reality. First of all, in Pakistan we severely lack a common conceptual framework of sciences and humanities or natural and social sciences. It would not be wrong to say that we never made a concerted effort or even had an informed discussion on the issue. Moreover, due to lack of interest, or in the absence of necessary academic training in the subject such as Sociology of Knowledge, and Philosophy of Science, both scientists and social scientists have not been

able to investigate the social, cultural, and political conditions that facilitate or impede the emergence and development of science and technology. Writing in a relatively different context, Ashish Nandi has aptly described it as the outcome of a wrong assumption that the text of science is independent of its context. Here in Pakistan, as elsewhere, it should be realized that science is primarily a social product. It is made what it is by individuals who operate in a given situation, who are not dissociated with other individuals, who are affected by the policies and preferences of the state or the organizations they work in, and, above all, their scientific inventions, discoveries and researches have a utility which is determined by the society or those who decide about the society. It is extremely necessary that we bring in discussion the social context of scientific research in order to make our science responsible and pro-people in its character and approach. It is here that a social science perspective could be of help in highlighting the needs and direction of scientific research in the country.

In this respect, the first point to be considered is regarding the values; what values we inculcate in our scientists. Of course, science and scientists are not value-free, as they both operate in a particular socio-moral domain and are made use of by those who are related to that domain. Famous sociologist Max Weber was of the opinion that the Protestant Ethics was the driving force behind the emergence of modernity, rational thought, and capitalism, which in turn produced the modern science. An American sociologist, Morton, talked about the presence of a cultural ethos of science as a necessary condition for the development of science. Explaining cultural ethos, he referred to its ingredients as being organized skepticism, disinterestedness, and universalism. In the case of Pakistan, we will have to ask ourselves what values form our culture and what segment of cultural ethos match with the imperative of scientific outlook, scientific inquiry and search for truth. Not only this, we also need to institutionalize these values in a manner that whatever we produce is both responsive to our society and fulfills the international standards of research and inquiry.

In the case of Pakistan, we need to also understand that it is the social structure that determines the parameters of education, and even scientific research. A society which is predominantly feudal or is slowly moving away from feudalism, or that is also tribal, can hardly support the scientific outlook. It is always a scientific temper on which is built the scientific research and scientific temper finds place only in societies which are open to questioning, which allow skepticism and which put a premium on challenges to established authority both within the social domain as well as in the world of academia.

The third important factor regarding Pakistan is the nature of power structure of the state itself. Unfortunately, instead of building the country as a social welfare state our ruling elite preferred to make it a national security state whose requirements are totally opposed to those of a social welfare state. Consequently, the priorities were so laid down that education, social protection, and uplift of the underprivileged never attained any attention and was subjected to a very low priority. As a result of this, universities, continued to long for grants and in the absence of this, they progressively turned into extension of colleges, while the colleges became an extension of schools. For the promotion of science and education at large there is a need to revisit the scheme of priorities of the state.

In order to correct these things, perhaps it would be useful if a social science perception and a critique of the state of science are made to build a discourse leading to suggestions which might be useful for making the use of science more responsible.

Related to this is the need to evolve an understanding of the common rationale behind various disciplines and integrating them in multidisciplinary disciplines. We also desperately need studies on the history of science in Pakistan. What role the state and the private sectors have played in the promotion of science and scientific research? How the institutions have worked so far and with what performance?

These questions might lead to an environment of research in which the issues of responsible use of science would be expected to receive the rightful focus.