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3. Humanities vs Sciences

S RADHAKRISHNAN

SARVEPALLI RADHAKRISHNAN (1888–1975) was India's Vice President (1952–1962) and President (1962–1967), besides being a highly respected thinker, teacher and public intellectual. Philosophy and Religion were his major subjects throughout his five decades of teaching and research in India and abroad. Radhakrishnan's greatest academic achievement was his election to Oxford's most prestigious Spalding Professorship in Eastern Religions and Ethics, a Chair he held from 1936 to 1952.

Every year, the country observes September 5, the day on which Radhakrishnan was born, as Teacher's Day. The Bharat Ratna, India's highest civilian honour, was conferred on him in 1954.

'Humanities vs Sciences' is a plea for an integrated study of the sciences, the applied sciences and the human sciences. Radhakrishnan considers that a complete education in modern times is possible only when a young person devotes equally serious attention to the physical and natural sciences on the one hand, and the languages, philosophy and history on the other.

Humanities vs Sciences

The three obstacles which stand in the way of national development are ignorance, disease and poverty. Of these, the major obstacle is ignorance. If we are able to remove ignorance from men's minds, their poverty also will diminish, their disease also will be eliminated. That is very essential.

We have been trying to achieve through our Five-Year Plans, a kind of economic development which will lead to the spread of education, the removal of illiteracy, the lowering of the incidence of disease and the elimination, as much as possible, of poverty.

We have men and women energetic and eager to do their best, and we have vast natural resources also. In spite of all these things, what is it that prevents us from achieving something great and glorious here? I say that it is the lack of proper education, in quality as well as in quantity. When we look at the country and the vast problems which it is facing, it is the educated men—men who have competence and skill, who have a sense

of direction, who have a social purpose—it is such people who will be able to transform our societies. If we are to achieve that, we have to tackle our educational problems more seriously than we have done hitherto. This must be regarded as the highest priority in any kind of social and economic reconstruction in our country.

Technological Education

People nowadays are greatly attracted by technological education and naturally too. But we should also remember that technological education without the complement of humanistic studies will be imperfect, lop-sided and deficient. It is possible for us, by the control we have obtained over the forces of nature, to bring about paradise on earth. It is equally possible for us, by pressing a button, to destroy continents. If the choice is to be made wisely, we must be cultivated in the arts of civilized life. Humanistic training and technological study must be regarded as complementary to each other. They should not be regarded as divorced or as separated from each other.

Political freedom has given us the great opportunity and the sacred responsibility of building up a new India free from want and disease, rid of the curse of the caste and the outcaste, where women will enjoy the same rights as men and where we shall live at peace with the rest of the world. The inspiration of such an India should sustain us in our work ahead.

The industrial growth of our country requires a large number of scientists, technicians and engineers. The rush in our universities for courses in science and technology is natural. Men trained in these practical courses help to increase productivity, agricultural and industrial. They also hope to find employment easily. To help the students to earn a living is one of the functions of education.

I do not believe that scientific and technological studies are devoid of moral values. Science is both knowledge and power. It has interest as well as utility. It is illuminating as well as fruitful. It demands disciplined devotion to the pursuit of truth. It develops in its votaries an attitude of tolerance, open-mindedness, freedom from prejudice and hospitality to new ideas. Science reveals to us the inexhaustible richness of the world, its unexpectedness, its wonder.

Nevertheless, these qualities are developed by science incidentally and not immediately. It does not directly deal with the non-intellectual aspects of human nature. Economic man who produces and consumes, the intellectual man, the scientific man is not the whole man. The disproportionate emphasis on science and technology has been causing concern to thinking men all over the world. The great crimes against civilization are committed not by the primitive and the uneducated, but by the highly educated and the so-called civilized.

Humanities

We come to the universities to be equipped with the knowledge and the skill by which we will be able to help the building up of our country. Are we doing it? Are the universities providing the right material for the nation-building operation? Are they giving them the knowledge and the skill which are essential for any kind of process? You come here to study sciences, to study humanities, to study theology also, which is not an unimportant science. Science itself is necessary because the wonders of science have transformed this world. For transport we had the horse, the bicycle, the automobile, etc. Now, the other day, I heard that a rocket-ship can take us from one place to another in a space of 25 minutes. These are all great achievements which we have to participate in. Everyone of us must feel that as the achievements of science are spreading, we have also some contribution to make so far as those achievements are concerned.

It is wrong to think, as once upon a time Blake said, 'the tree of life is sustained by art, the tree of death by science.' It is a misleading conception; science may be abused but that is not the fault of science; that is the fault of man. It is, therefore, essential for us to provide our students with the best that is possible in sciences and technology. It is these things that help us to provide the necessities for our people.

Humanities again are important because they tell us about our own nature; how we have to grow from day to day. What the impulses are, what the ideals and aspirations are, these are the things that we have to learn from the humanities. But whether it is sciences or humanities, whether they are natural sciences or social sciences, they touch only the periphery of the reality, they touch only the outside, the expression, the multiplicity of manifestations. But what the central being is, you have to learn also if a student is to consider himself to be really educated. Mere sciences, natural or social, are not enough. You have to exercise yourself, what is called some kind of solitary reflection or if we wish to follow up political revolution by a social and economic one, our universities must send out batches of scientists, technicians, engineers, agriculturists, etc. These are essential for changing the face of our country, the economic character of our society. But we should not believe that science and technology alone are enough. There are other countries, much advanced countries in the world, which have achieved marvellous progress in scientific and technological side, but yet they are torn by strife and they are unable to bring about peace, safety and security of their own people. It only shows that other qualities are also necessary besides those developed by science and technology.

The function of the universities is not merely to send out technically skilled and professionally competent men, but it is their duty to produce in them the quality of compassion, the quality which enables the individuals to treat one another in a truly democratic spirit. Our religions have proclaimed from the very beginning that each

human individual is to be regarded as a spark of the Divine. *Tat tvam asi*, that art thou, is the teaching of the *Upanishads*.

That is why even though our country needs great scientists, great technologists, great engineers, we should not neglect to make them humanists. While we retain science and technology, we must remember that science and technology are not all. We must note the famous statement that merely by becoming literate without the development of compassion, we become demoniac. So no university can regard itself as a true university unless it sends out young men and women who are not only learned but whose hearts are full of compassion for the suffering humanity. Unless that is there, the university education must be regarded as incomplete.

No one can be said to be truly educated if his knowledge is limited to one special branch. The evils of specialization can be combated only by a course in what is now called general education.

National education does not mean that subjects like physics and chemistry, engineering and technology, change with the boundaries of nations. It means that there is a national heritage, a tradition of values into which the students should be initiated. India is not a geographical abstraction but a living spirit. The outlook associated with the country has been a spiritual one, that there are higher laws of the universe than those studied by sciences and technology, that the world is more than what we see, feel, touch and measure. Two principal features of the modern world are that we are members one of another, that there is no decree of God or man which compels us to be sick and hungry, poor and unemployed. The strong shall help the weak is the foundation of all civilized existence.

It is also possible to unify the world and all of us can settle down as good neighbours. A future more glorious than the past is open to us. And yet we are afraid of what lies before us, for we see that there is no limit to the possibilities of scientific destruction. The obstacles to human well-being are in the minds of men. Hatred, folly, erroneous beliefs and uncivil passions make us incapable of seeing the truth and working for it. To counter these tendencies we need, in addition to technological knowledge and skill, an understanding heart and wisdom. It is because of the lack of wisdom that many of us are mentally unstable and morally unsound.

As the *Bhagavad Gita* has it, we should aim at wisdom as well as knowledge, *jnanam vijñana sabitam*. At a time when we are obsessed with technical achievement rather than with absolute values, with practical work rather than with a full life, it is good to realize that technology is for man and not man for technology. The material things of the world are to be used for expanding man's knowledge and enriching the treasures of the spirit. It is not enough to feed the human animal or train the human mind. We must also attend

to the needs of the human spirit. We must learn to live from a new basis, discover the reserves of spirituality, the sense of the sacred found in all religions.

The aim of the natural scientist is to discover the external world of reality. By scientific methods we do not know anything directly about reality. Scientific information is indefinite and uncertain in its import. It gives us signs which we have to interpret. The scientist assumes that the world is governed by a system of laws which can be understood, though not in a comprehensive way. The only interpretation that is logical is that which points to a central mystery. We know only in part, not the beginning, not the end. We should admit that the mystery is not capable of adequate logical description or linguistic statement. We should not only be tolerant, but appreciative of others' points.

Search for Truth

There is, however, no incompatibility between the findings of science and the doctrines of religion. The search of truth is their common goal though they have different ways of approach to it. Since God is Truth, *satya-svarupa*, the quest of Truth is the quest of God. Man who makes the machine is greater than the machine. He who splits the atom is greater than the atom. Science does not suggest the omnipotence of matter. It suggests the supremacy of the spirit of man. The spirit which moves in the minds of the men, which inspires and guides them in this quest, is Divine. The word *Brahman* connotes both the truth which is sought and the spirit in us which seeks it. A scientific view of the world reveals to us a central mystery, which is not disclosed to scientific observation. Our attitude to it should be one of piety, humility and adoration. We must acknowledge that truth belongs to God and ideas belong to men. The poison of intolerance is inconsistent with the mystery of God. Too much blood has been unnecessarily and unjustly shed in the name of religious doctrine. The different religions are great spiritual achievements of man and we should take pride not in one special production of mankind but in all, for all are fellow-pilgrims treading their way to the truth in every great faith. *Tirukkural* is claimed by the followers of Jainism, Buddhism and Hinduism and teaches a universal humanism. True religion requires us to extend our sympathy even to those who do not belong to our group. Religious pride may make us hold that true religion is our own, that 'we are the people, and wisdom shall die with us'.

In 1947 when we attained independence, Jawaharlal Nehru thought it was time for starting an industrial revolution. Poverty is the greatest problem facing the country and the only way in which we can tackle the problem is by increasing production—agricultural and industrial—and the way to do it is by the application of science and technology. If today in different parts of this country we see institutes and laboratories, dams, atomic

reactors, irrigation systems, etc., all these things are due to no small extent to the urge which Jawaharlal Nehru gave to our country.

In recent times, therefore, we have had a spiritual revolution, a social revolution, a political revolution, and an industrial revolution. It is the industrial revolution through which we are passing. This country, during its great days, was never isolated. It was a part of the stream of world history. If you turn to the ancient systems of mathematics or medicine, you will find there, the great influence of the Greek, the Roman, the West Asian and other systems. If you turn to the European world you will find that the great advances of science were due to the co-operation of people like Newton, an Englishman, Kepler, a German, Copernicus, a Pole, Galileo, an Italian. All of them collaborated and brought about a scientific revolution of the modern world. So also, we were collaborating with the other nations in our great days. When we fell under subjection, when we were cut off from the other sources, when we became isolated, our lives became constricted and we were not able to carry the torch that we used to. After political independence was gained, we again came back into the mainstream of history. Our scientists go to different parts of the world and make some small contributions to the advance of the world. They are known today to all parts of the world where science is pursued and, therefore, it is a matter of not much unimportance, a matter of great significance, that we have come back; and that the gospel that we adopted and which we practised for a number of years we forgot it, we were cut off from it, and we have come back to it and, therefore, we must try to regain our lost initiative.

It is necessary that if we want to attack the problems which our country faces—poverty, malnutrition, disease, defective water supply, people dying like flies in some parts of the country—these are all things which must make us feel ashamed of ourselves—it is necessary for us to care for the poor. Attention to the poor is the supreme test by which any government is judged. If we are to be judged to be a civilized society, our first interest must be what we are doing for the thousands of people who are suffering from undreamt of evils—who are the victims, so to say, of all sorts of epidemics and who die like flies on the pavements of our country or in rural areas. If we want to tackle these problems it is essential for us to develop science and technology. We must develop these things, we must adopt a scientific outlook. Everyone of us must be endowed with a scientific spirit; obscurantism, superstition and such other things which have weighed us down for centuries must be removed and human beings must feel that they are rational human beings with dignity, with a sense of responsibility—responsibility not merely for what they do but for the poor who are entrusted to their care.

Again and again remarks were made, a special lecture was delivered at Cambridge, saying that a scientific culture and an academic or literary culture are two different things

and one has little to do with the other. We produce either seers or technicians; we produce men of intuition, of imagination, or we produce men with mechanical skill, with practical ability, but we do not produce men who are at the same time seers and technicians, people who are able to develop their imagination and at the same time develop their scientific skill. This whole concept of our cultures being divided, of their being two, is something which is, to my mind, unfounded. Truth is indivisible. Whether it is historic truth, literary truth, or scientific truth, the approaches may be different, but ultimately what we do is exactly the same. It is the imagination that is roused in us by the study of literature, it is imagination again that makes the scientist go forward; his hypothesis makes him remould the environment by which he is presented and makes him bring out the deepest secrets of nature. It is the spirit in man that sits in judgment on the facts of nature, which enables the human being to reshape the environment. We should reshape not merely our outer environment but our inner environment also, our inward forces, the internal power we have, even that has to be remoulded.

The great leaders of countries, the great statesmen, have developed astounding power over nature; they have developed spectacular capacity to destroy humanity as well as to save humanity. If we are threatened today by the forces which we have raised, it is not due to forces outside, but lack of control which we have, so to say. It is not weapons that destroy us but it is lack of wisdom. It is the human being who destroys the rest of humanity. If we are to reform ourselves, then science will be the great instrument for the development of the human race, for improving the quality of the human race. That is what we should aim at. *Atma Samaskriti*: development of human nature, refinement of the human spirit—that is the one supreme aim which we have to put before ourselves.

Knowledge and Wisdom

Most of us think that we are scientists because we press a button, the light comes up; we press another button, the telephone rings; we press a third button, we get the motor-car outside. But we do not know how these things function. What is the knowledge which is enshrined in these instruments? We know only how to press a button and get something done. That is, we live on the surface of human life—robots, mechanics, technicians. We do not know what the depths of these things indicate and stand for. If we know that, we will never say that science is a different discipline and not human discipline, and the other things, literature, history, etc., make a different kind of man. It is not so. We must study science not from the surface but from its very depth. We must try to understand how all these things happen, how the human being has been able to penetrate into these things and how it has brought about a new transformed world. It is not necessary for us to be

technologically or mechanically uniform. That does not follow. If we have the human spirit cultivated, we will not become mere mechanical robots. The very transformation that science has brought about will make you raise the question of the meaning of existence. That is part of the quest for knowledge. You want to know why knowledge is what it is, what is the knowledge which science contributes, what is the relation to the knowledge which other branches of discipline give us.

All the branches of discipline have only one end—*sarvasastra prayojanam atma darsanam*. An insight into Reality is the end of all kinds of discipline. You must recognize that knowledge cannot be divided against itself. All truth must be regarded as one whole. Whether you practise this discipline or the other discipline, you should practise the one supreme pursuit of truth. It is that which makes a human being dignified and civilized. If you are able to do it, then you become a really civilized human being.

There is a general criticism levelled against us that where our knowledge of nature is increasing, our wisdom is diminishing. The spectacular achievements of science are very impressive and they have got such great power in their control that they can devastate the world. If there are people who contemplate the results of nuclear developments they will feel, what is it that has happened to man, why is it that he has increased in worldly power, has extended his body so much through his control over radio, television, and other machines, and yet his soul seems to be stagnant? It is not growing correspondingly. There is disproportion between the growth of wisdom and the increase of knowledge. It is that disparity that has impressed many people. Let us try to extend our understanding of the nature of things; let us have certain values which will be utilized by the mechanical devices and contrivances we have brought about. It is necessary for us to know, whatever may be the nature of science, it is the spirit of man that is expressing itself there. Every human individual must look up to himself not as living on the outer surface of things. There is a living depth in him. There is a centre there which persists, which abides, whatever may be the changes.

If that kind of criticism is hurled against us, it is due to the neglect of the spiritual side, due to the neglect of human beings who are concentrating themselves on the externals of life, little realising that these externals are to be employed for the purpose of promoting human wisdom. So wisdom and knowledge will have to grow together. Everything in this world has been a means or an instrument of grasping the Eternal. Even the arts in which we dwell, the arts that we foster, they are said to be—*Kala-kam paramatmanam lati grhnati iti kala*. 'That by which we grasp the Eternal, that is said to be an art' and its purpose is to refine the spirit of man. All sciences are there but we are incapable of using them for refining our own spirit. We have said it so often but in practice we overlook it.